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DEVELOPING ENTERPRISE SKILLS THROUGH ENTERPRISE EDUCATION:

The Significance of the Contribution of
Experiential Learning Approaches in the
Pharmacy Education Context in the UK HEIs

DEEMA REFAI

A thesis submitted to the University of Huddersfield in partial
fulfilment of the requirements for the degree of Doctor of Philosophy

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DEDICATION

To my wonderful mum Amira for believing in me. Thank you for your unconditional love, support and continuous prayers throughout this long journey.

To my lovely husband Radi for his support and inspiration. Thank you for always being there for me and sharing all the ups and downs of this journey with me. And to my little sunshine Ahmad whose smile gave me the motive to carry on with my work everyday.

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ABSTRACT

Higher Education is often cited as a key for the enhancement of the quality of graduates. In this research, the contribution of Higher Education Institutions (HEIs) in developing more enterprising graduates was investigated. The research specifically looked at the significance of the contribution of the learning activities embedded within the curriculum as part of experiential learning approaches, and how these contributed to equipping graduates with a range of generic transferable enterprise skills that are an essential part of employability skills. Nowadays, the idea of graduates with a bulk of knowledge, which they cannot apply, is no longer valid. Therefore, HEIs are under growing pressure to deliver graduates with the necessary range of skills that satisfy the demands of the employment marketplace.

This research follows a qualitative research method through adopting an hermeneutic phenomenological methodology, and was conducted in the context of pharmacy education in the United Kingdom (UK) HEIs during 2011. The research primarily considers the views of pharmacy academics as to how pharmacy schools understand the concept of enterprise education, what efforts they place to develop students' enterprise skills and the extent to which experiential learning activities are utilised to serve this objective. The research also considers opinions of pharmacy employers in the marketplace to evaluate their views about the need for enterprise skills by recent pharmacy graduates, and whether they are satisfied by the level of skills demonstrated by recent graduates. Furthermore, the research briefly considers views of pharmacy students to evaluate the extent to which they value the need for enterprise skills, and whether they believe the educational process is helping them in developing those skills.

In order to consider the large amount of data obtained in this research, analysis of results was divided into four parts, each representing one major theme. This supported a more efficient discussion of analysis and drawing of conclusions in ways that clearly relate to the research objectives. The findings of this research show that HEIs consider the development of a range of students' enterprise skills. However, the skills considered are generally focused around particular contexts, and are, thus, confined to certain parts of the curriculum rather than others. The research points out some gaps in the application of experiential learning approaches that possibly contribute to impeding the efficient development of graduate enterprise skills. In doing so, the research emphasises the importance of formally addressing the development of enterprise skills as part of schools' strategies or philosophies in order to have them intentionally developed as part of the learning objectives across all modules by all academics.

In conclusion, this research highlights the significance of the context in developing enterprise skills, and shows how the contexts in which enterprise skills are developed affect the way in which these skills are demonstrated, as well as the ability to demonstrate those skills in other contexts. Accordingly, the research proposes two original models suggesting that the more a person is exposed to different contexts in which he/she is allowed the opportunity to develop enterprise skills, the more that person's skills become transferable. Last but not least, the research proposes a third original model suggesting six essential aspects of experiential learning. This model will help in implementing experiential learning approaches more efficiently in ways that could overcome the several identified gaps, and, thus, enhance the value of these learning approaches as means to develop graduates' enterprise skills.

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List of Abbreviations:

ACPE	Accreditation Council for Pharmacy Education
AGCAS	Association of Graduate Careers Advisory
CBL	Case-based Learning
CEI	Centre for Education and Industry
CETL	Centre for Excellence in Teaching and Learning
CPD	Continuous Professional Development
CSHE	Centre for the Study of Higher Education in Australia
EBL	Enquiry-based Learning
EHE	Enterprise in Higher Education
EU	European Union
HE	Higher Education
HEA	Higher Education Academy
HEI	Higher Education Institution
IPA	International Pharmaceutical Abstracts
IPA	Interpretive Phenomenological Analysis
IPPR	Institute for Public Policy Research
MCEETYA	Ministerial Council on Education, Employment, Training and Youth Affairs
MCQs	Multiple Choice Questions
MUR	Medicines Use Review
NCGE	National Council of Graduate Entrepreneurship
NHS	National Health Services
OSCEs	Objective Structured Clinical Examinations
PBL	Problem-based Learning
RPSGB	Royal Pharmaceutical Society of Great Britain
R&D	Research and Development
SCRE	Scottish Council for Research in Education
SMEs	Small to Medium-Sized Enterprises
TA	Thematic Analysis
UK	United Kingdom
UKTI	UK Trade and Investment
US	United States
YE	Young Enterprise

CHAPTER ONE:

INTRODUCTION

1.1. INTRODUCTION

Academic 17: ‘I suppose it also goes with the question of what university education is about anymore? Because traditionally when you read for a degree you weren’t focusing necessarily on a job, or an end point, it was learning for the sake of learning, whereas now we’ve got to be realistic. You know, students come to university to get skills to get employed, so perhaps it is our responsibility to train them to do a job’.

This comment was made by one of the academic respondents in this research which explores whether Higher Education Institutions (HEIs) should take part in developing students’ generic transferable enterprise skills, which are part of the essential employability skills for any graduate. The comment suggests that the role of HEIs has developed over the years to involve preparing graduates who are ready for the employment market by equipping them with the necessary skills to carry on.

In this research, the main focus is on the generic transferable enterprise skills related to employability, which have been shown to have a growing impact on national competitiveness and the innovativeness of companies and individuals (Hytti and O’Gorman, 2004). During the past years, the educational policies related to development of those skills have witnessed a lot of developments where they evolved from education focusing on creation of employment through entrepreneurship, to more innovative learning approaches that focus on the creation of a skilled workforce who can drive the success and innovation of organisations, and consequently contribute to international competitiveness (Martinez *et al.*, 2010). The aim of this research is to evaluate the extent to which HEIs appreciate and understand the value of enterprise education which aims to develop a range of students’ enterprise skills in terms of generic transferable skills related to employability. In doing so, the research focuses on the

role of experiential learning in developing those enterprise skills, and whether this learning is being utilised to address this issue. The research considers pharmacy education at HEIs as the context of this study, and evaluates the specific enterprise skills developed by pharmacy schools alongside an assessment of whether these skills satisfy the needs of the marketplace, and whether they are valued and appreciated by the pharmacy students themselves.

This chapter explains the rationale of this study and why it is of value. Meanwhile, this chapter explains the essential concepts of this research including enterprise education, enterprise skills and experiential learning, and justifies the researcher's logic behind focusing on experiential learning as a means to enterprise education. The chapter also explains undergraduate pharmacy education in HEIs in the United Kingdom (UK), and justifies the rationale behind choosing it as the context of this study. The chapter then moves on to explain how the research problem and objectives were formulated while illustrating all the essential research aspects in the framework developed for this research study. Following that, a brief introduction about the methodology of this research is provided. Finally, this chapter concludes with an outline structure of this thesis.

1.2. ENTERPRISE EDUCATION AND ENTERPRISE SKILLS

This research study looks into enterprise skills in terms of generic transferable skills that are valuable for everyone in all contexts. Here, enterprise is not related to making money and gaining profits, nor is it related to the starting up of new enterprises. Rather, enterprise in this research is about having the ability to demonstrate a range of skills which are necessary for all people – whether employed or self-employed – in order to effectively compete in today's challenging marketplace. Due to this, enterprise skills are also related to employability and career development since they emphasise enabling skills and not just knowledge. Such skills might include – but are not necessarily limited to – decision-making, planning, negotiation,

critical thinking, assessment, communication and networking, problem-solving, group thinking, creativity and time management (Rae, 1997; Brockhause, 2001). However, whether starting a new enterprise, or behaving as an employee in an enterprising way that leads to new or improved products, services or processes, the word enterprise would still incorporate the meaning of having an idea and acting to make it happen.

This issue was explored by Rae (2007a) who also added that employers are increasingly valuing such skills in graduates. Yet, in a recent research report by the Scottish Council for Research in Education (SCRE) centre at the University of Glasgow (2011), Lowden *et al.* stressed that employers in the marketplace are generally not satisfied by the level of skills demonstrated by recent graduates, and there is a call in research to assess the value of the contribution of HEIs in this regard. Furthermore, graduates in general do not find it easy to take their first step into the employment market, especially in light of the growing numbers of graduates from various fields. However, many may argue that the development of such skills is not the responsibility of Higher Education (HE), or that the curricula in HE are already packed with knowledge making it quite difficult to consider such issues. Such arguments highlight the value of this research as it looks at enterprise education as a process that takes place through learning activities embedded within the curricula and not as education that aims to develop students' skills through separate courses. In other words, enterprise education in this research refers to learning activities that are student-centred and interactive in ways that allow students to develop a range of skills through engaging in learning activities while at the same time develop their discipline-specific knowledge. This way, enterprise education is not expected to place more pressure on students and academics to comprehend more curricula and include more courses within the limited programme time. Accordingly, enterprise education in this research can be defined as *'the processes or series of activities*

that aim to enable an individual to assimilate and develop the knowledge, skills, and values required to become enterprising' (Broad, 2007, p.5).

Compared to the United States (US) and Canada, enterprise activities in the European Union (EU) are significantly lacking (Survey of Entrepreneurship in HEIs in Europe, 2008). Enterprise education in Europe is described as being in its infancy stage, and there are yet lots of challenges and obstacles to overcome. The Survey of Entrepreneurship in HEIs in Europe (2008) explained that enterprise education is not available to more than half of the European students; these are estimated to be around 11 million students with no engagement in any kind of enterprise education. The survey also showed that enterprise education is provided more intensely and in different and more elaborate ways to students attending business schools or multidisciplinary institutions with a business school department, while specialised HEIs particularly technical ones are still somewhere behind (Survey of Entrepreneurship in HEIs, 2008). In the UK, the National Council of Graduate Entrepreneurship (NCGE) mentioned that there has been a notable growth in enterprise education since 1999, where among the 1.9 million students enrolled in HE 7% are getting the advantage of enterprise education (Broad, 2007). Nevertheless, entrepreneurship programmes in the UK are still mainly offered to undergraduates in business schools, where 27% of the outcomes focus on increasing the student's knowledge and understanding of entrepreneurship, and only 15% focus on developing skills, attitudes and behaviours (Broad, 2007). Accordingly, this provision of enterprise education through separate courses provided by business schools has succeeded in enriching students' theoretical business knowledge, but has not succeeded in developing the skills required by them in different contexts. Such relatively low levels of enterprise activity added to the importance of conducting more research into enterprise education to study and assess its methods, objectives and processes.

Several methodological developments in the delivery of enterprise education have been proposed, but when it comes to setting distinguishing characteristics between enterprise education and other forms of education the picture is still not very clear. This ambiguity often arises from the issue that literature mentions different sets of objectives to be achieved under the broad definition of enterprise education (Hytti and O’Gorman, 2004), and the fact that the concept of enterprise education overlaps in many cases with other concepts such as experiential learning (Kolb, 1984), entrepreneurial learning (Gibb, 1999; Rae, 2000), work-related learning (Dwerryhouse, 2001), action-learning (Revans, 1991; Smith, 2001), opportunity-centred learning (Rae, 2003) and Problem-based Learning (PBL) (e.g. Savin-Baden, 2000; 2003; 2004; 2007). Hytti and O’Gorman (2004) argued that there is still not enough awareness of the various available options provided by enterprise education, and that a clear understanding of the objectives and methods of such education should be considered as the starting step for proper design and evaluation of enterprise education programmes, especially when it comes to the specific methods and objectives applicable to specific contexts. Furthermore, a recent study by Draycott and Rae (2010) concluded that *‘there is a concern that the ‘delivery’ of enterprise education takes place in ways which are not ‘enterprising’ forms of learning’* (p.127), and also argued that introducing alterations to definitions, structures and pedagogies is essential in order to make the role of enterprise education clearer. Nevertheless, there are still debates regarding the extent to which developing such skills should be ‘relevant’ to the marketplace (CIHE, 2003).

Accordingly, it became necessary to explain in advance the specific objectives of enterprise education, and which of these objectives are the interest of this research. The objectives of enterprise education have been categorised into a three-category framework including education *‘about’*, *‘for’* and *‘into’* enterprise. Education *‘about’* enterprise is usually a theoretical approach that focuses on developing understanding about entrepreneurship and

enterprise, while education '*for*' enterprise specifically aims to prepare entrepreneurs and motivate learners to start up their own business; this education equips students with a set of entrepreneurial skills which have been argued by Galloway *et al.* (2005) to be useful for those going for employment in addition to those seeking self-employment. Education '*into*' enterprise is, however, the interest of this research; it focuses on developing a range of skills that are essential for effectively carrying out various organisational tasks. Education '*into*' enterprise is sometimes referred to as '*through*' enterprise, and it is worth mentioning here that this type of enterprise education does not cancel entrepreneurship as a possible option for graduates, but does not set it as an anticipated outcome (Hartshorn, 2002). Accordingly, the term 'enterprise education' will be used in this research to refer to education '*into*' enterprise, which deals with developing enterprising individuals; thus, it is not applicable only to business education, but rather to all disciplines that aim to develop enterprising graduates who can create and add value to their careers and organisations (Gibb, 1999; Jack and Anderson, 1999; London and Smither, 1999; Henry *et al.*, 2005a; Rae, 2007a). The three-category framework describing the objectives of enterprise education is discussed in more detail in Section 2.7.

This research will specifically look at the contribution of experiential learning methods as means to deliver education '*into*' enterprise since this type of enterprise education is concerned with learning approaches embedded within the curricula that aim to develop students' enterprise skills rather than enterprise education provided through separate courses provided normally by business schools. Enterprise education needs to be associated with more enterprising approaches (Gibb, 1993a; 1996, 2002) that encourage students' active involvement in the learning process (Gorman *et al.*, 1997; Fiet, 2000a). Experiential learning encourages students to integrate the knowledge and skills they gain across different courses and modules, and realise the practical application of their knowledge. Such learning has been

shown to help in developing a range of students' transferable skills that should help them throughout their lives in today's dynamic work environment, and, thus, is considered in this research as a means for delivering education '*into*' enterprise.

1.3. EXPERIENTIAL LEARNING AND EXPERIENTIAL LEARNING METHODS

Several methodological developments in the delivery of enterprise education have been discussed in literature by various researchers. Many of these methods are relatively new and incorporate experiential methods as an essential part for delivering such education. This research specifically considers the value of experiential learning methods, which are becoming increasingly utilised as part of the curricula in many disciplines, and their contribution as means for embedding enterprise into curricula and the development of students' enterprise skills.

Experiential learning methods have been established in literature to support the development of a range of transferable skills in students (Revans, 1982; Kolb, 1984; Rae, 2003). Such methods can be applied to support students' '*formal*' learning in ways that enhance students' knowledge; this involves learning that is intentionally offered and endorsed through structured school systems (Hafferty, 1998). Experiential learning can also be utilised to support students' '*informal*' learning whereby students develop skills, attitudes and values through the learning experiences they go through. Informal learning is seen as unstated and unplanned learning which is enhanced through interaction and role models (Hafferty, 1998). Conner (2009) added that informal learning could happen '*accidentally*' whereby students develop those skills without intending or expecting to develop them, or '*intentionally*' whereby students aim to develop those skills and work toward achieving that. However, Conner (2009) contended that in most cases education focuses on formal learning programmes, which leads to losing a lot of the valuable outcomes and potentials that could

result from intentional informal learning, especially that when informal learning is organised into practices and processes it can lead to a better outcome and development of students' skills.

Several types of experiential learning have been discussed in academic literature; among the most commonly described learning methods are PBL (e.g. Barrows, 2000; Savin-Baden, 2000; 2003; 2004; 2007), Enquiry-based Learning (EBL) (e.g. Price, 2003; Kahn and O'Rourke, 2004; Savin-Baden, 2007), Case-based Learning (CBL) (e.g. Chi-Wan and Lopez-Nerney, 2005; Savery, 2006; Richards and Inglehart, 2006; Srinivasan *et al.*, 2007), team-based learning (e.g. Hassan, 2011; Stewart *et al.*, 2011), opportunity-centred learning (e.g. Rae, 2003), action learning (e.g. Revans, 1991; Smith, 2001) and new venture-based learning (e.g. Gibson *et al.*, 2009). The last two approaches mentioned are more targeted at enterprise education that aims to develop learners' entrepreneurial rather than enterprise skills and, thus, will not be discussed in this research. In this research, the first three approaches of PBL, EBL and CBL, will be discussed as they are the most applicable approaches in pharmacy education which is the context of this study. In this discussion more focus will be placed on reviewing research related to PBL for reasons that will be explained next.

There are several reasons for focusing on PBL in more detail as an experiential learning method. First of all, PBL, EBL and CBL are closely-related learner-centred approaches, where many of the underpinning learning processes are common to all (Savery, 2006). This should make a detailed investigation of one approach sufficient to understand the innovative learning activities that these learning approaches incorporate, while at the same time pointing out the minor pedagogical differences between them. Therefore, more emphasis is placed on PBL as there is a significant amount of research related to PBL and its application in different disciplines, especially in medical education where there is quite a lot of literature

investigating its methods and approaches (Cisneros *et al.*, 2002; Webster and Riggs, 2006). PBL has also been successfully applied to develop students' intellectual skills in several disciplines such as pharmacy, nursing and others (Cisneros *et al.*, 2002; Webster and Riggs, 2006), where a study by Jungnickel *et al.* (2009) showed that applying PBL in pharmacy education, which is the context of this research, is regarded as one of the best approaches for developing pharmacists' skills. Furthermore, Dochy *et al.* (2003) conducted a meta-analysis on 43 studies into PBL in medical sciences and reported that PBL has a significant impact on developing students' skills and helping them realise the practical application of their knowledge. Glover *et al.* (2002) and Martin *et al.* (2008) argued that the skills developed through PBL in HEIs are highly valued by employers, and Little (2001) mentioned that employers value the flexibility that PBL provides for in applying skills in various situations. Therefore, PBL is focused on more specifically in the literature review of this thesis since it is seen to provide a good example of experiential learning and the various aspects related to its implementation at HEIs.

1.4. THE PHARMACY AND PHARMACY EDUCATION CONTEXT

This section justifies the researcher's reasons for choosing undergraduate pharmacy education as the context of this study. However, before discussing these reasons it is important to describe undergraduate pharmacy education in the UK, and the process that pharmacy students go through before becoming qualified pharmacists. Furthermore, it is important to describe the pharmacy employment market and the contribution of its sectors to the economy. Accordingly, this section starts with an elucidation of undergraduate pharmacy education in the UK, followed by a description of the pharmacy marketplace, before moving on to an explanation of the researcher's justifications for choosing pharmacy education as the context of this study.

1.4.1. UNDERGRADUATE PHARMACY EDUCATION IN THE UK

Undergraduate pharmacy education in the UK HEIs is offered through the Master of Pharmacy (MPharm) programme, which is an undergraduate master's level degree. The MPharm degree was introduced in the year 2000 as the recognised qualification for qualified pharmacists in the UK, where the pharmacy degree programme at HEIs was extended into a four-year programme followed by a compulsory supervised one-year pre-registration work programme in the real-world. Before that, the pharmacy degree was offered through a three-year Bachelor of Science (BSc) programme, after which students went through a supervised one-year pre-registration. The three-year BSc degree is still available for students applying for a Pharmaceutical Science degree, which requires lower entry requirements than the MPharm programme, and graduates from this programme cannot work as practicing pharmacists in retail or hospitals. Despite being an undergraduate master's level degree, an MPharm degree is a lower level qualification than a Master of Science (MSc) degree since it does not require a bachelor's degree as a pre-requisite for entry into the programme.

The MPharm programme is offered by 29 universities across the UK, 25 of which are accredited by the Royal Pharmaceutical Society of Great Britain (RPSGB), which acts as the professional body for pharmacists in the UK. About 150 students enrol in each pharmacy programme at HEIs every year, where the most deciding enrolment factor is their performance in A-Levels. Other requirements vary among different schools; for example in some schools the selection of enrolled students depends also on performance in personal interviews, while others might require students to perform a written examination. Another requirement for enrolment is 'fitness to practice', where pharmacy schools are required to ensure that enrolled students do not have any

disabilities, illnesses or convictions since these issues will prevent their future registration as qualified pharmacists (Sosabowski and Gard, 2008).

The RPSGB sets accreditation standards for MPharm programmes on a five-year basis. The assessment criteria include 50 environment and management-related criteria and 51 curriculum-related criteria. The environment and management criteria involve aspects such as the number of direct study hours that students should engage in during the programme, percentage of the programme dedicated to analysis, experiments or observations, and percentage dedicated to clinical-related courses as opposed to the science-related ones. These criteria also include curriculum review processes, involvement in research and post-graduate studies, academic rank of staff and others (Sosabowski and Gard, 2008).

The curriculum-related criteria are referred to as the curriculum content or indicative syllabus. These are less prescriptive than the environmental and management criteria and look at requirements in the curricula such as teaching principles of drug treatment, effects of drugs on various living systems, physical-chemistry of drugs, analytical methods, supply and sale of drugs including ensuring patient safety, and requirements of qualification including requirements for Continuous Professional Development (CPD) (Sosabowski and Gard, 2008).

Generally speaking, the MPharm programmes across different pharmacy schools are broadly similar. Typically, students in year one study the basics of chemistry, math, physiology and biology. Students in year one are also generally introduced to pharmacy practice and academic skills required during their studies. In the second and third years, students engage more thoroughly in medicinal chemistry mathematics, formulations and pharmaceuticals, pharmacology, therapeutics, analytical chemistry

and pharmacy practice. In these years, most programmes include a level of experiential learning and involve students in preparation of personal reflective portfolios (Sosabowski and Gard, 2008). In the fourth year, students usually engage in research projects where they produce, analyse and reflect on data.

After completion of their fourth year, students go through a compulsory supervised one-year pre-registration followed by an RPSGB registration exam, which they have to pass, in order to become registered pharmacists in the UK. The number of pharmacy graduates has risen in the UK from about 2,000 graduates in 2006 to around 2,900 in 2010 (NHS, 2010). About 2000 pharmacy graduates are accepted to do their pre-registration every year, where their acceptance is based on their grades, references and interviews (Sosabowski and Gard, 2008). Some schools offer 'sandwich' courses, where instead of doing pre-registration as one continuous year at the end of their four-year studies, students do their pre-registration in two six-month placements; the first six-month placement is done following completion of the third year and the second after completion of the fourth year. The 'sandwich course' is seen to offer students a better opportunity to realise the relevancy of their learning and the practical application of their knowledge during their studies.

Other than the pre-registration year requirement, the RPSGB does not provide formal requirements to include clinical placements during an MPharm programme. However, many schools offer their students placements for at least one week during their four-year studies. Yet, these placements often place pharmacy schools under pressure since many health authorities are demanding fees in return for offering students clinical experiences, where such fees might add up to £50 per student per day. Such funding is not supported by the government as in the case of medicine and nursing students'

placements, which forces pharmacy schools to make a decision of whether to fund such placements for their students at the expense of other areas in the programme such as practical exercises and laboratories. In order to enhance students' understanding of the practical application of their knowledge, pharmacy schools are also increasingly employing 'teacher-practitioners' for at least one day a week. Teacher-practitioners are practicing pharmacists who work in the real-world and at the same time do some teaching to undergraduate pharmacy students at HEIs.

All in all, the MPharm programme in the UK is distinguished over programmes in other European countries since it provides students with the basic theoretical and scientific knowledge besides exposing them to experiments and clinical experience, whereas other programmes focus mostly on scientific knowledge before students graduate and start their clinical and pharmacy practice exposure (Sosabowski and Gard, 2008). The UK four-year MPharm programme is the shortest pharmacy programme compared to pharmacy programmes in other European countries which take place over five to six years.

Assessment of pharmacy students mostly relies on written performance of students, which includes reports and analysis of data as in research projects for example. However, due to plagiarism problems, schools are trying to cut down on the number of coursework assignments (Sosabowski and Gard, 2008). Pharmacy schools also employ assessment methods to assess competency levels of students; for example students might be required to write portfolios or logbooks where they write about different situations they face, how they handled them and what they learned from them. Some schools also apply Objective Structured Clinical Examinations (OSCEs) in which students are exposed to clinical situations and given tasks or cases which

they have to fulfil in a limited time of around seven minutes. Competency-based assessments can be formative or summative but successful completion by students is necessary in all cases.

Following successful completion of their one-year pre-registration, pharmacy graduates can apply to become registered pharmacists at the RPSGB. The career paths that pharmacists enter after that vary; the majority of graduates (about 90%) go for a career in retail/ community pharmacy, followed by hospital pharmacy, and then industry and academia (Jesson *et al.*, 2006). The demand for pharmacy graduates by the industry sector has reduced due to the availability of an increasing number of pharmaceutical science graduates, who study a three-year undergraduate pharmaceutical science BSc degree. The case for academia is different, however, since this sector is in need of qualified pharmacists but has not been able to attract a sufficient number, which has been the case during the last twenty years. This is mainly due to the relatively low salaries offered by the academic sector compared to other sectors, and the high research output requirements required by universities nowadays, which most recent graduates do not have (Sosabowski and Gard, 2008).

1.4.2. THE PHARMACY EMPLOYMENT MARKET AND ITS CONTRIBUTION TO THE UK ECONOMY

As mentioned earlier, pharmacists can seek employment in several occupations. The main employment sectors for pharmacists are represented by the two major sectors representing Pharmacy and Pharmaceutical Industry in the UK including the Health Sector and the Science and Pharmaceuticals Sector. Here, Community and Hospital Pharmacy are regarded as part of the Health Sector, while Pharmaceutical Industry is regarded as part of the Science and Pharmaceuticals Sector.

The health sector comprises various occupational groups among which is the Qualified Medical Support, which includes community and hospital pharmacists' careers among others such as dietitians, physiotherapists and speech and language therapists. Other occupational groups under the health sector include the Medical Profession, Nursing, Dentistry, Medical-Related Scientific Services such as audiologists, biomedical scientists and medical physicists, Assistant/Support Roles such as nursing assistants and care assistants, Qualified Ambulance Staff, Therapeutic Services such as art therapists and music therapists, Complementary Medicine such as acupuncturists and sports therapists, Business Support Roles in finance, HR and IT areas, and Associated Support Services such as catering and gardening.

There are about 62,000 healthcare establishments in the UK (Sector Skills Assessment, 2010), which are represented by various employers. The NHS is regarded as the main employer in the health sector in the UK, with more than 300 occupational opportunities available. Bupa is the second largest employer, followed by the General Healthcare Group which provides independent healthcare, then comes the Nestor Healthcare, AXA PPP Healthcare, the Armed Forces, Private hospitals, professional bodies including regulatory and educational bodies, and finally a number of Small to Medium-Sized Enterprises (SMEs) which employ nearly 250 employees in the health sector (Morton-Holmes, 2010).

The health sector represents 8% of the workforce in the UK. Approximately 2.1 million people work in this sector, with about 73% working with NHS public sector (Sector Skills Assessment, 2010). These are mainly dominated by nursing followed by the medical practitioner's occupational groups comprising approximately 661,000

employees (Sector Skills Assessment, 2010). The vast majority of pharmacists work in large retail chains and independent pharmacies, and about 6,000 pharmacists are currently employed as hospital pharmacists, mostly in NHS hospitals (Sector Skills Assessment, 2010). The growth rate of the health sector has slightly decreased compared to the 1990's, but is expected to grow by 1% up 'till 2014, which is one of the highest sector growth rates in the UK, and is higher than that anticipated for the overall economy (Sector Skills Assessment, 2010). Growth has also been noted in the independent sector as there are increasing numbers of private investors, and people interested in spending more on healthcare and personal services (Sector Skills Assessment, 2010).

The Typical starting salaries in the National Health Services (NHS) for pharmacists in this sector range from £21,000 - £35,000 depending mainly on location and experience, with independent pharmacies and small multiples generally paying lesser rates. For experienced pharmacists, with ten or more years of experience, salaries go up to £40,000 - £68,000 a year, while locum pharmacists are usually paid an hourly rate of £20 - £25 per hour on working days. However, salaries in the private sector tend to be somewhat higher than these rates (NHS, 2012).

Employment rates for community and hospital pharmacists tend to be relatively high so far. A recent survey of pharmacy graduates in 2010 showed that 70% of pharmacy graduates in that year managed to sign full-time paid contracts within 6 months of graduation, and an additional 22% were working and studying at the same time. This adds up to more than 90% of pharmacy graduates going into employment, with more than 96% of these seeking employments in the health sector (AGCAS Editors, 2011). It is worth mentioning here that employment rates in the health sector are unlikely to

drop in the next few years, as nearly 60% of the available workforce are expected to keep their jobs in 2018 (Sector Skills Assessment, 2010). This is mainly due to certain factors influencing this sector including the growing percentage of ageing population, the unprecedented advancements in healthcare provision, the increasing frequency and pervasiveness of patients having long-term conditions, as well as the rising expectations of patients to receive better health services (Sector Skills Assessment, 2010).

The science sector on the other hand, in which pharmaceutical industry is represented, includes occupational opportunities in Research and Development (R&D), biotechnology, industries including pharmaceutical, oil and gas, nuclear, petroleum, chemicals and polymers, laboratories and manufacturing of medical devices, as well as patents, publishing and scientific communication, and the foundational science for developing various sectors.

The science sector is one of the largest in UK. This sector comprises one fifth of the UK workforce, with 5.8 million employees working in its various science-related occupations such as product and process development and medical and analytical chemistry, in addition to other employees working in non-science-related occupations such as HR, marketing and logistics (Sector Skills Assessment, 2010).

According to the UK Trade and Investment (UKTI, 2012), the UK is regarded as one of the world's leaders in the life sciences sector, which is mostly represented by the pharmaceutical industry. The daily expenditure on R&D in this sector reaches up to £7.5million, with more than 28% of the total spend going for the pharmaceutical sector (UKTI, 2012). The number of employees in this life sciences sector exceeds 120,000 people (UKTI, 2012). 75,000 of the employees in the life sciences sector

work in the pharmaceutical industry in more than 300 companies in the UK, with the main global pharmaceutical industry companies being GE Healthcare, Glaxo-SmithKline (GSK) and AstraZeneca. (UKTI, 2012). The total annual turnover of the life sciences sector is £30.4billion (UKTI, 2012). Furthermore, the UK companies account for 45% of the biotechnology and healthcare products in the pipeline in Europe (UKTI, 2012), and the medical technology sector of the UK comes second in Europe as it comprises nearly 4,000 companies employing over 86,000 employees, with an annual turnover contribution of up to £18.4 billion (UKTI, 2012). As for publications and scientific papers, the UK has received 70 Noble prize awards through its contribution of nearly 8% of scientific publications (UKTI, 2012).

The average salaries for pharmacists in the science sector vary mainly according to type of job, place and experience. For example, the typical starting salary for an analytical chemist ranges between £14,000-£20,000 a year, going up to £24,000-£35,000 a year for an experienced chemist. However, the typical starting salaries for a product/process development scientist range between £20,000-£29,000 a year, going up to £52,000-£65,000 a year for an experienced scientist, while salaries for regulatory affairs pharmacists with extensive experience could add up to £100,000 a year (Ashley-Roberts, 2011).

1.4.3. RATIONALE BEHIND CHOOSING PHARMACY EDUCATION AS THE CONTEXT OF THIS STUDY

There were several reasons for choosing undergraduate pharmacy education in HEIs as the context of this study. These can be divided into five main areas, where the first area is a personal one, the second has to do with the lack of research investigating experiential learning as a means for enterprise education and the development of pharmacists' enterprise skills, the third area is related to the developments that

pharmacy curricula have undergone over the past 20 years, the fourth area is basically about the rapid changes and developments that the pharmacy marketplace is witnessing, and the last area is about the growing emphasis from pharmacy education regulatory bodies to adopt more innovative learning approaches that focus on developing students' skills besides their knowledge. Following is an explanation of each of these areas.

First of all, the researcher is a pharmacist and is aware of the education and employment contexts of pharmacy. This was expected to enhance communication with respondents as it enabled the researcher to speak their language during personal interviews with them. Furthermore, the researcher is personally interested in developing better understanding about the need for skilful pharmacists in the marketplace and how the educational process in HE could contribute to achieving that. Personal reflections of the researcher are discussed in more detail in the Methodology Chapter of this thesis (Section 4.4).

Regarding the second area, during review of previous research and literature, it was noted that there was hardly anything relating enterprise education to disciplines other than the business and management ones. This added to the value of conducting research into enterprise education in the context of a science-related discipline, especially that previous literature has called for researching enterprise education and enterprise skills with more focus on exploring the methods and objectives of specific disciplines (Broad, 2007). Furthermore, authors like Gardner (2010) commented that the role of informal learning in developing students' skills is gradually gaining more recognition; yet, Bradley *et al.* (2011) argued that there is very little research describing such learning in pharmacy education. Such lack of research into enterprise

education in the pharmacy education context might be related to the issue raised by the Survey of Entrepreneurship in HEIs (2008) that enterprise education is provided more intensely and in different and more elaborate ways to students attending business schools or multidisciplinary institutions with a business school department, while specialised HEIs particularly technical ones are still somewhere behind. This is also important since many of the enterprise skills, which are defined as essential skills in academic literature, might not be expected to be demonstrated or needed at the same level across different disciplines, which adds to the value of investigating the specific discipline-based approaches and objectives of enterprise education.

Furthermore, during the review of literature related to this research, it became apparent that the available research is largely limited to developing pharmacy students' patient-care and clinical skills without having a more general perspective on developing a wider range of their generic transferable enterprise skills, which are the interest of this research. A large amount of research investigating the effectiveness of experiential learning also focuses on traditional tests that evaluate the content of curricula in terms of students' basic knowledge and not the specific objectives of experiential learning. There was hardly any evidence in current research about approaches to developing transferable enterprise skills for pharmacists, which are essential for employability like for example negotiation, networking, confidence, self-reliance, demonstrating leadership and others. In other words, research does not address the development of enterprising pharmacists who are more innovative, flexible and creative in the way they carry out different tasks regardless of the area of profession they choose. This issue was raised by Jungnickel *et al.* (2009) in their discussion about the need to address a list of competencies in the future professional pharmacy curriculum; they suggested five abilities to be developed in pharmacy

students: professionalism, self-directed learning, leadership and advocacy, inter-professional collaboration, and cultural competency. To achieve this, Jungnickel *et al.* (2009) contended that future curricula should focus more on engaging pharmacy students in interactive and experiential learning, and less on information storage and retrieval. This was also supported by Inegbenebor (2007) in his research about the role of locus of control of pharmacists as entrepreneurs or employees. Inegbenebor (2007) concluded that despite the fact that pharmacists with more locus of control are more likely to become entrepreneurs than employees, enhancing the locus of control of pharmacy students through pharmacy programmes would add a lot of value to these programmes since it will result in more innovative graduates who can develop enhanced pharmaceutical services and benefit their societies whether they end up as owners of businesses or managers of relevant operations.

The third area is related to factors inherent in the pharmacy curricula itself. The educational content and context of pharmacy education has witnessed a lot of changes over the last 20 years, where the focus shifted from emphasising the traditional supply of medicines to the provision of primary health-care services that are centred around patient-care (Reid and Posey, 2006). For example, introduction of supplementary prescribing and independent prescribing has been among the most significant changes introduced to pharmacy practice in the last few years; supplementary prescribing allows qualified pharmacists to prescribe repeat and modified prescriptions after proper diagnosis by a specialist doctor, whereas independent prescription allows pharmacists more diagnosis and prescribing responsibilities but requires attainment of an accredited training qualification. Such changes have emphasised the need for skilful pharmacists, which consequently called for more attention to applying more student-centred and interactive learning approaches in pharmacy education (Beck,

2002; Marriott *et al.*, 2008). Anderson, *et al.* (2011) for example contended that pharmacy education needs to consider the application of more innovative approaches to learning in ways that enable students to become more efficient team workers in the health profession. Among the main experiential learning approaches reported to be increasingly applied in pharmacy education are PBL, EBL (Jungnickel *et al.*, 2009), CBL (Abd Rahman, 2010), and to a lesser extent Team-based Learning (Hassan, 2011; Stewart *et al.*, 2011). The first three approaches of PBL, EBL and CBL will be discussed in this research in Sections 3.2, 3.3 and 3.4 as they are the most commonly applied approaches, and more emphasis placed on discussing PBL for reasons explained earlier in Section 1.3.

Regarding the fourth area, the pharmacy profession has witnessed massive developments in the complexity and variety of drug treatments, which added more value nowadays to having pharmacists who are more knowledgeable and skilful and who can meet the demands of the dynamic marketplace and work out the various drug-related problems (Brown and Ferrill, 2009). This is important to pharmacists working in any of the sectors of pharmacy, whether in retail, hospitals, industry, research or academia. For example, knowledge about drugs, their usage and processing methods is continuously being updated, which makes continuous self-learning skills essential for pharmacists. Pharmacists are also expected to handle multiple industrial problems and critical clinical incidences with confidence and problem-solving skills. Additionally, pharmacists are also expected to establish effective communication networks with doctors and nurses, as well as patients and customers and work toward understanding and satisfying the needs of each in order to take their place as effective members of the health team. These among other factors – such as the continuously developing regulatory requirements and good manufacturing

practices, as well as the CPD requirements– add to the need for pharmacists who have the necessary enterprise skills to help them deal with the various needs of the dynamic market they operate in. Therefore, when it comes to employment, employers are increasingly demanding graduates with the necessary level of skills that enables them to handle the demands of the challenging marketplace in all sectors of pharmacy. Thus, the value of enterprise skills is highly regarded in a pharmacy career (Brown and Ferrill, 2009), as would be expected in many others, which further emphasises the value of this research and its contribution to pharmacy education.

The last area is related to the growing attention from accreditation bodies and regulatory agencies – as the Accreditation Council for Pharmacy Education (ACPE) in the US and the RPSGB in the UK – which enhanced their requirements for accreditation of pharmacy schools and their programmes to implement more rigorous curricula that focus on developing students’ skills besides developing their knowledge. For example, the Accreditation Manual (2000) of the ACPE stated that *‘The educational process should promote lifelong learning through the emphasis on active, self-directed learning’* (p.53). They also stated that pedagogies should include *‘teaching strategies to ensure the adeptness of critical thinking and problem solving’* (p.53). Such standards are developed as part of the accreditation bodies’ responsibility to develop pharmacy graduates who could adapt future professional requirements. Furthermore, submission of periodic CPD records as evidence of life-long learning is now a mandatory requirement for continued registration of practicing pharmacists at some of the formal associations as the RPSGB (Shaw *et al.*, 2006). Such emphasis from regulatory agencies means that it is only a matter of time until all pharmacy schools adopt learning methods that focus on developing students with lifelong learning abilities and a set of skills that enables them to handle the requirements of

their dynamic and continuously developing marketplace, which adds to the value of this research.

Considering these personal factors, lack of research about developing enterprise skills in specific disciplines, changes introduced into pharmacy curricula over the past 20 years, the dynamic pharmacy marketplace, and the growing emphasis from regulatory agencies to develop pharmacist enterprise skills during the educational process, the pharmacy education context was seen to provide a good case for this research, and results derived from researching this context would hopefully be of value to other contexts as well.

1.5. FORMULATING THE RESEARCH PROBLEM, RESEARCH OBJECTIVES AND RESEARCH FRAMEWORK

The previously discussed arguments related to enterprise education and experiential learning lead the researcher to some questions. If schools in general, and pharmacy schools in specific, at HEIs are increasingly utilising experiential learning methods, which have been proven to support the development of a range of students skills, then do these schools realise the potential of these learning methods in developing more enterprising graduates? If so, how are they being utilised? And why is there still a lack of satisfaction among employers with the level of graduate skills?

Accordingly, this research came to address these questions. The pharmacy education context at pharmacy schools in HEIs in the UK was chosen as the context of this research study for reasons justified in the previous section. Pharmacy employers, pharmacy academics, and pharmacy students were interviewed to investigate questions of: do pharmacy schools realise the concept and value of enterprise education and enterprise skills? Are pharmacy schools intentionally utilising experiential learning methods for the development of students'

enterprise skills in a systematic and organised way? If so, do the skills developed satisfy the expectations of employers in the marketplace? And what are the barriers facing pharmacy schools in this regard? Through this exploration, the research evaluated the extent to which developing graduate enterprise skills is a valuable inclusion in an undergraduate pharmacy degree and/or the responsibility of employers in the marketplace. In doing so, the research linked together opinions of pharmacy employers who might believe it is their role to develop students' enterprise skills, with the opinions of academics who might agree or disagree with employers as to when and where these skills should be developed, and the opinions of students in terms of their appreciation and understanding of the need and value for these skills.

Based on this discussion, the research objectives and research questions were formulated as follows:

Research objectives:

- Objective 1:** To establish the nature and value of the contribution of HEIs in developing more enterprising pharmacy graduates
- Objective 2:** To determine the extent to which pharmacy schools in the UK HEIs embrace the concept of enterprise education
- Objective 3:** To assess the significance of contribution of experiential learning methods to the development of enterprise skills

The following fourth objective, however, is an aspirational one mainly due to the lack of literature in this area, which makes it quite difficult to relate the findings and discuss them in the context of relevant literature. Here, the researcher hopes to be able to identify some of the external issues, which are not related to HEIs, but are thought to impede the development or the demonstration of enterprise skills by recent graduates in the real-world. Accordingly, the fourth objective was formulated as follows:

Objective 4: To identify barriers to developing pharmacy students' enterprise skills during HE

Research questions (RQ):

Several RQ were formulated to address this research objectives, where each research objective has several RQ linked to it as follows:

RQ linked to objective 1: To establish the nature and value of the contribution of HEIs in developing more enterprising pharmacy graduates

RQ1: To what extent is there a need for recent graduates who are capable of demonstrating a range of enterprise skills?

RQ2: Which enterprise skills are important to pharmacists?

RQ3: Are recent pharmacy graduates presenting with a satisfactory level of enterprise skills?

RQ4: Is the development of enterprise skills a personal responsibility of the student, a valuable inclusion in an undergraduate pharmacy degree, and/or the responsibility of employers in the pharmacy marketplace?

RQ5: What are the pharmacy students' perceptions as to the value of and need for enterprise education and the development of enterprise skills?

RQ linked to objective 2: To determine the extent to which pharmacy schools in the UK HEIs embrace the concept of enterprise education

RQ6: Do pharmacy schools understand the concept of enterprise education?

RQ7: What efforts are being introduced to develop students' enterprise skills?

RQ8: How are these enterprise skills being developed, intentionally or accidentally?

RQ9: Where are these skills developed, as part of undergraduate education or workplace environment (in HEI's context or real-world's context)?

RQ linked to objective 3: To assess the significance of contribution of experiential learning methods to the development of enterprise skills

RQ10: Which experiential learning methods are being applied?

RQ11: What are the objectives of applying these experiential learning methods?

RQ12: How are experiential learning methods applied at pharmacy schools?

RQ13: How are the learning outcomes of experiential learning methods assessed at pharmacy schools?

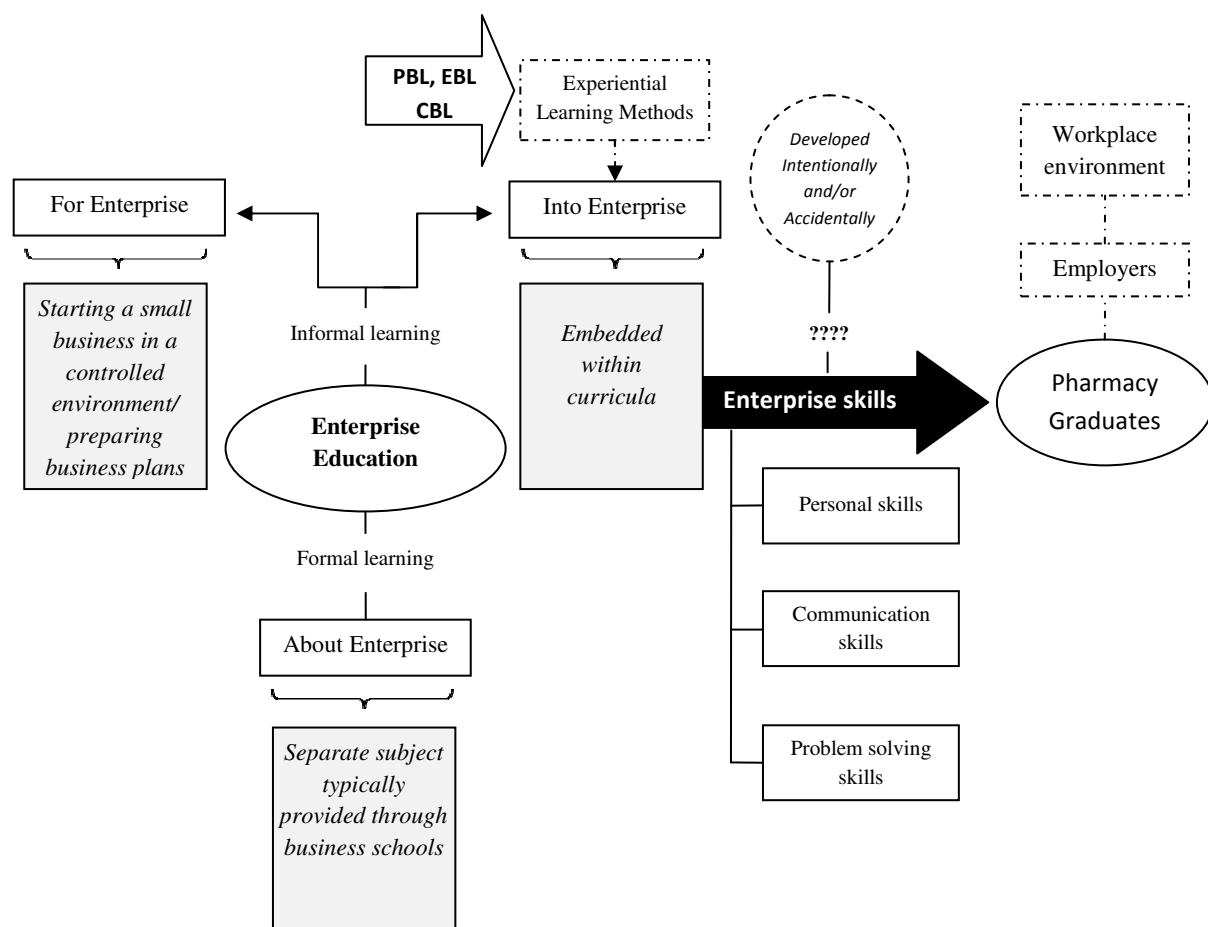
RQ14: To what extent do pharmacy schools support the application of experiential learning methods?

RQ linked to objective 4: To identify obstacles external to HEIs that impede the development of pharmacy students' enterprise skills

RQ15: Are there any gaps or barriers that hinder the development or demonstration of skills by students and are not controlled by HEIs?

Through addressing these objectives and research questions, this research should hopefully help in increasing the understanding of the process of enterprise education in pharmacy departments in HEIs in the UK, with a special emphasis on the contribution of experiential learning and its significance in developing students' enterprise skills. The following Figure 1.1 became the conceptual framework of this research after careful evaluation and review of current literature. Among the three types of enterprise education, the figure represents education 'into' enterprise as part of informal enterprise education, whereby students develop a range of transferable enterprise skills through the learning experiences embedded in the curricula. Experiential learning is presented in this framework as a means for delivering education 'into' enterprise; such learning can be delivered through several learning approaches among which are PBL, EBL and CBL. The enterprise skills developed vary between personal skills, communication skills and problem-solving skills which are all essential employability skills that are highly valued by employers in the workplace environment. Thus, graduates who are capable of demonstrating these skills are expected to find employability easier since they are more likely to satisfy the demands of employers and the demanding workplace environment.

Figure 1.1.: Research Framework: Utilising experiential learning as a means for delivering education ‘into’ enterprise and the development of students’ enterprise skills



Source: Adapted from Refai (2009)

1.6. RESEARCH METHODOLOGY

Application of experiential learning, which could take place through several approaches, can help in developing students’ academic performance, knowledge and skills. In order to explore these research objectives, the research focused on academic approaches to applying experiential learning and whether these are utilised for equipping students with the necessary enterprise skills besides developing their knowledge in the pharmacy education context. The research also assessed the value of these skills in the pharmacy marketplace and whether pharmacy graduates are capable of demonstrating satisfactory levels of them, in addition to evaluating students’ appreciation and understanding about the need for these skills. Developing these enterprise skills lead to many arguments about the process of developing them, the responsibility of developing them, which

skills are important and why, and when they should be developed. Accordingly, in order to evaluate this mix of approaches, beliefs, values and perceptions derived from pharmacy academics, employers and students, it is not enough to only objectively measure what is seen, but to subjectively evaluate respondents' opinions and views through techniques that enable exploring the study's aims and objectives (Morgan and Smircich, 1980). Furthermore, respondents in this research are not regarded simply as respondents to fixed structures in the social world but are active participants who could actually take part in building and creating social reality. Here, the contextual frameworks of knowledge and activities in which people interact are believed to contribute to creating their social realities. Accordingly, qualitative research methodology was deemed appropriate for this research since it helped in considering meanings, quality and texture of human experiences (Willig, 2001). The research philosophy adopted a social constructionism paradigm, which followed a relative realism ontology and a transactional epistemology, while adopting Gadamer's hermeneutic phenomenology as the methodology for this research; the methodology and its underlying philosophies are discussed in detail in the Methodology Chapter (Chapter 4).

The research adopted face-to-face interviews as a research method. A number of pharmacy academics from a number of pharmacy schools in different HEIs in the UK were interviewed to investigate the learning approaches applied at pharmacy schools and the extent to which they believed HEIs are responsible for developing them; the research identified experiential learning methods applied and whether these are utilised for equipping students with the necessary enterprise skills besides developing their knowledge in the pharmacy education context. The research also assessed employers' views where a number of interviews were conducted with pharmacy employers from the retail, hospital and industry sectors of pharmacy; employers were asked about the responsibility of developing enterprise skills, their value in the pharmacy marketplace and whether graduates are capable of demonstrating satisfactory levels of them.

Reflective interviews with pharmacy academics and employers were also applied in order to confirm the researcher's understandings and offer a number of respondents the opportunity to reflect on their initial views as well as the views of others. Finally, the research evaluated perceptions of students as to their appreciation and understanding about the need for these skills and whether they believed the educational process is helping them in developing a sufficient level of those skills.

1.7. DESCRIPTION OF THE OUTLINE OF THIS THESIS

Following this Introduction Chapter, this thesis presents a thorough conceptual analysis that is divided into two main chapters; Chapter 2 which discusses the core concepts of enterprise education and enterprise skills, and Chapter 3 which discusses the innovative learning activities applied as part of experiential learning approaches, alongside a detailed description of PBL, EBL and CBL approaches. The methodology of this research is described in Chapter 4, including a detailed description of the research paradigm, as well as its ontology, epistemology and methodology, and how they support meeting the objectives of this research. Following that, a comprehensive analysis of the findings of this research is provided over four Chapters, 5, 6, 7 and 8, divided according to the four main themes of data analysis. The data analysis is followed by a discussion of findings in Chapter 9 where the analysis results are related to relevant literature as well as to the researcher's views. Finally, the thesis concludes with the conclusions Chapter 10 that draws the whole picture of the research and emphasises its contribution to literature and to practice.

CHAPTER TWO:

ENTERPRISE SKILLS AND ENTERPRISE EDUCATION

2.1. INTRODUCTION

This part of the literature review provides theoretical conceptions about enterprise skills and how they relate to enterprise education. The chapter explains the various challenges, debates and drives related to enterprise education and enterprise skills and why such areas are important to research. Furthermore, the chapter examines the frameworks of enterprise education programmes and how these differ according to the different objectives of enterprise education. In doing so, the chapter highlights enterprise education approaches necessary for developing enterprising graduates and how these relate to experiential learning, where the latter is an essential component of this research.

2.2. DEFINITION: WHAT DOES IT MEAN TO BE ENTERPRISING?

Besides defining enterprise skills in the context of this research, it is important first to explain in this section definitions of entrepreneurship and entrepreneurial skills as well in order to point out the discrepancies between both. Such explanation is necessary since terms referring to entrepreneurship and enterprise are quite often used interchangeably, which is a matter that has been emphasised by several researchers (e.g. Leadbeater and Oakley, 1999; Raffo *et al.*, 2000; Henry *et al.*, 2005a; Rae, 2007a; Jones and Iredale, 2010; Sewell and Dacre Pool, 2010).

Entrepreneurship definitions generally focus on process and content (Henry *et al.*, 2005a); entrepreneurship has been described as a process of creating an economic entity that is built on a new or at least different product or service than those available in the market (Curran and Stanworth, 1989). Entrepreneurship is also defined as the starting up of new SMEs (Low

and McMillan, 1988). Bruyat and Julien (2000) defined entrepreneurship as *'to do with a process of change, emergence and creation of new value, it is also a process of change and creation for the entrepreneur'* (p. 173). Accordingly, entrepreneurship is shown to influence the progress of businesses and business approaches (Thornberry, 2001), and, thus, affects the growth of the economy by increasing productivity and competitiveness, as well as creation of new businesses and opportunities (Wennekers and Thurik, 1999).

In accordance with these definitions of entrepreneurship, an entrepreneur is defined as someone who *'carries out new combinations'* (Schumpeter, 1934, p.78). Bolton and Thompson (2000) defined an entrepreneur as *'a person who habitually creates and innovates to build something of recognised value around perceived opportunities'* (p.5). Meredith *et al.* (1982) defined an entrepreneur as someone who can *'see and evaluate business opportunities; gather the necessary resources to take advantage of them, and initiate appropriate action to ensure success'* (p.3). Timmons (1989) also described entrepreneurs as people who act proactively starting from scratch, and are able to achieve and build organisations or enterprises, and Kirby (2002) defined an entrepreneur as a *'change agent'* (p.511) who recognises or discovers opportunities and takes advantage of them to make things happen. Such people demonstrate a range of entrepreneurial skills which focus mostly on aspects of handling a business; these include a range of management skills including strategic planning, writing business plans, marketing and product development, financial literacy, competitiveness, staff recruitment and retention, ability to take risks and many other skills which are necessary for entrepreneurs to carry out their tasks effectively (Broad, 2007).

People working inside large organisations can also act as entrepreneurs, where in such cases they are referred to as intrapreneurs. Such people are capable of demonstrating a range of entrepreneurial skills and are commonly known to be assertive risk takers and innovators who

drive the success of their organisations by taking advantage of opportunities and turning ideas into profits while adopting reward and motivational tactics (The American Heritage Dictionary, 1992). Here, entrepreneurship is referred to as intrapreneurship or corporate entrepreneurship, where in such cases it does not imply self-employment or the starting up of new firms and enterprises (Shane and Venkataraman, 2000; Sharma and Chrisman, 1999).

As for enterprise skills, this concept is often confused in the literature and has evolved over the years. One of the initial definitions of enterprise competencies was as those competencies that *'consist of knowledge (about the specific project or business), specific project skills and general capability; that is, the ability or predisposition to set up and run projects'* (Johnson, 1988 in Caird, 1992, p.7). Here, the word 'competencies' is sometimes used instead of 'skills' to describe *'a much broader use and is often now used to include skills as well as abilities, motives, traits, and self-image'* which include everything necessary to have skills and excel as being ambitious, proactive, willing to learn... (Guirdham and Tyler, 1992, p.52). Later on, broader definitions of enterprise skills that highlighted more 'soft skills' were introduced, which helped in relating enterprise education more to employability and career development (Garavan *et al.* 1995). The Davies Report (2002) conducted an evaluation of 17 schools that provide some sort of enterprise education and provided a more comprehensive definition, where enterprise capability was defined as *'the ability to handle uncertainty and respond positively to change, to create and implement new ideas and new ways of doing things, to make reasonable risk/reward assessments and act upon them in one's personal and working life'* (Davies, 2002, p.17). Rae (2007a) also defined enterprise skills as *'the skills, knowledge and attributes needed to apply creative ideas and innovations to practical solutions'* (p. 611). Enterprise skills in the last two definitions can be related to non-technical skills which are defined as *'skills which can be deemed relevant across many different jobs or professions'* (Sherer and Eadie, 1987, p.16). Students develop their non-technical skills

during their learning experience. According Sherer and Eadie (1987), students get to develop those non-technical skills side-by-side with the technical skills, where the latter are relevant to the subject or discipline they are studying and are essential for them to act competently within their discipline as physiology or computer science for example.

Definitions of enterprise skills by Davies (2002) and Rae (2007a) also brought this concept closer to the requirements of employment, where being able to demonstrate a range of skills besides having the knowledge would make a graduate more likely to be employed. Moreland (2006) defined employability as *‘a set of skills, knowledge and personal attributes that make an individual more likely to secure and be successful in their chosen occupation to the benefit of themselves, the workforce, the community and the economy’* (Moreland, 2006 in Rae, 2007a, p. 607), and Dacre Pool and Sewell (2007) defined it as *‘having a set of skills, knowledge, understanding and personal attributes that make a person more likely to choose and secure occupations in which they can be satisfied and successful’* (p.280). However, beside skills and knowledge, it should be noted that other aspects including personal attributes and the character and individuality of a person, as well as his/her motivation to achieve, are all essential employability considerations. In other words, despite that enterprise skills are related to employability and are valued by employers in the marketplace, it is important to point out that ‘employability’ as a concept is not similar to ‘enterprise skills’ since it involves aspects of career development, learning and work experience which are not essentially part of enterprise education and enterprise skills (Sewell and Dacre Pool, 2010).

The previous definitions of enterprise skills by Davies (2002) and Rae (2007a) are consistent with the definition of enterprise skills in this research. This research considers developing those enterprise skills in graduates through the learning process during HE; it considers the development of enterprising graduates who are seen as people who draw their personal

success through personal development plans that match their personal values, and have the confidence to carry them out. This involves awareness of personal strengths and weaknesses, likes and dislikes, as well as ambitions, motives, values and capabilities (Guirdham and Tyler, 1992). To have such skills, enterprising people develop awareness of other people and how they behave; they are also capable of acknowledging individual differences among people and accordingly anticipate their reactions and responses and approach them in the best possible ways (Guirdham and Tyler, 1992).

Enterprising people are described as people who have high self-esteem and a sense of self-worth; they are always on the outlook for new opportunities that are likely to improve their future (Rohn, 2001). For that they are seen as confident and courageous people, with excellent communication and creativity skills. Furthermore, enterprising people have a positive influence on the working environments they operate in; their effect might even extend beyond that to affect a wider range of individuals outside their work environment (Atherton, 2007).

2.3. DEVELOPING A TEMPLATE OF ENTERPRISE SKILLS

Understanding what enterprise skills are and what skills and associated behaviours constitute these enterprise skills is essential in order to be able to develop the appropriate template for enterprise education (Broad, 2007), which is an essential part of this research (enterprise education will be discussed in detail in Section 2.5). Before moving on to discussing the range of enterprise skills referred to in this research, it is necessary to mention that upon review of current literature about enterprise skills and enterprise education it became evident that enterprise skills can comprise a range of different skills for different researchers. In other words, enterprise skills could mean different things to different people due to the previously discussed confusions around enterprise skills as ‘soft’ interpersonal skills (Davies, 2002) or

more functional entrepreneurship skills developed through formal approaches (Volkman *et al.*, 2009). Draycott and Rae (2010) carried out a comprehensive review of enterprise education frameworks in the UK, especially for younger people in secondary education. Their review included reasons for development of enterprise skills, the type of enterprise skills developed, and how they are developed and assessed. The authors contended that a clear distinction has to be expressed between both sets of ‘soft’ skills and entrepreneurship skills in any context discussing enterprise skills.

Caird (1992) considered enterprise skills with more breadth and classified them into seven main aspects; these included personality variables, communication skills, managerial skills, analytical skills, career skills, knowledge and attitudes. Due to the importance of enterprise skills in driving national economy, the Institute for Public Policy Research (IPPR) contended that both ‘functional’ and ‘soft’ skills are important to be considered (Gavron *et al.*, 1998); this also encouraged approaches as the Young Enterprise (YE) approach which advocated application of practical learning approaches and simulated learning environments to help students develop both sets of skills.

Furthermore, the Enterprise in Higher Education (EHE) initiative attended to the issue of supporting enterprise education in order to develop a template of transferable skills and competencies that support graduates’ transfer from education to employment. According to the EHE initiative a group of transferable enterprise skills related to employability were identified by several universities in the UK and grouped in three main categories including: personal skills, communication skills, and problem-solving skill categories (Nabi and Bagley, 1999). These three categories of skills were adopted for the purpose of developing a template of enterprise skills in this research. A list of skills was compiled under each group to represent the researcher’s interpretation of generic transferable enterprise skills; these skills

were developed with the assistance of several resources (e.g. Guirdham and Tyler, 1992; Whitely, 1995; Nabi and Bagley, 1999; Collin and Robertson, 2003; The Pedagogy for Employability Group, 2006; Broad, 2007; Thompson, 2007; Lowden *et al.*, 2011). For example, personal skills incorporated a number of skills as being up for responsibility, ability to assess situations and time management skills; communication skills incorporated skills such as good written communication and listening skills; while problem solving skills incorporated skills as decision-making, researching and reflective thinking. A comprehensive list of all the skills incorporated under each group is included in Table 2.1.

Table 2.1.: A list of generic transferable enterprise skills grouped into personal, communication and problem-solving skills

Attributes	Skills
Personal Skills	<ul style="list-style-type: none"> • Being up for responsibility and a leadership role, including taking initiative • Confidence and self-awareness, including independence and self-reliance • Self or independent learning/ Autonomy • Ability of self-assessment • Team skills and working with others • Ability to assess situations/ ideas and achieve results, including seizing opportunities • Time management • Planning and organising, including defining, allocating and establishing priorities • Flexibility in doing things/ Adaptability • Assertiveness, persistence and tenacity • Working well under stress/ handling pressure • Creative thinking, imagination, idea generation and thinking outside the box
	<ul style="list-style-type: none"> • Good written communication • Ability to explain, influence and persuade others (including stakeholders) • Presentation and negotiation skills • Listening skills • Networking, and building and managing relationships
	<ul style="list-style-type: none"> • Finding information, including resourcefulness and researching to explore and decide on what is needed • Decision making and Problem evaluation and solving skills including identifying options and assessing them while exercising judgment and measuring risk • Reflective thinking, including learning from relationships and experiences, and actively processing the knowledge gained while carefully considering all other aspects that might affect situations • Numeracy • Conceptual thinking • Computer literacy, including word processing, spreadsheets and databases

Developed from: Caird, 1992; Guirdham and Tyler, 1992; Whitely, 1995; Nabi and Bagley, 1999; Collin and Robertson, 2003; The Pedagogy for Employability Group, 2006; Broad, 2007; Thompson, 2007; Lowden *et al.*, 2011.

2.4. WHY IS IT IMPORTANT TO RESEARCH ENTERPRISE SKILLS?

There is a great emphasis nowadays, which is likely to continue, on having HE graduates who could compete at an international level, and demonstrate a level of thinking and behaviour that allows for developing various business ideas and achieving effective enterprising environments and organisational growth (NSTF, 2000; CIHE, 2003; Rae, 2010). Draycott and Rae (2010) argued that enterprise should be built-in as a fundamental part of the 'survival skills' that are essential for young people to start their lives and build their portfolios by having the necessary flexibility, continuous learning skills and diversity. Such skills are essential not only for graduates planning to become independent entrepreneurs and start their own business, but also for those who simply want to successfully compete in the employment market.

From an employment perspective, hiring is no longer an issue of filling vacancies anymore but more about investing in individuals who are capable of demonstrating the skills necessary to fulfil organisational tasks effectively (Mallon, 1998; Templer and Cawsey, 1999; Sullivan, 1999), like for example self-directed learning skills which are seen as important for maintaining competitiveness in the marketplace (Guirdham and Tyler, 1992). Therefore, there is a strong need to provide students with the ability to learn on a constant basis in order to survive the continuous changes imposed by the challenging real-world environment (Dosi and Malerbam, 1996). Rae (2007a) supported including activities that are relevant to employability as a central part of the learning process. According to Schofield (1996), employers tend to prefer undergraduates with a 2nd class degree who are capable of demonstrating a range of transferable enterprise skills over postgraduates without them. Despite that employers would generally have different evaluation criteria of graduate skills that vary according to different employment contexts and the demands of the relevant marketplace (AGR, 1995), there seems to be a growing emphasis toward graduates acquiring

a broad range of skills that would enrich their self-reliance and confidence irrespective of the context where they would work (e.g. Brown, 1989; Green, 1990; Binks and Exley, 1992; Watts and Hawthorn, 1992; AGR, 1995; Harvey *et al.*, 1997; Cotton, 2001). Employers nowadays are emphasising the need for workers who have excellent communication skills, and who can work collaboratively and creatively with teams to solve ill-defined problems and analyse findings (Lowden *et al.*, 2011).

Furthermore, it is argued that the financial stability of individuals is also related to their ability to learn and demonstrate the skills necessary for handling the requirements of the dynamic work environment (Handy, 1985). Such an issue is important in light of the growing complexity of securing a life-long job within the current economic situation, especially with the ‘downsizing’ that many organisations are shifting toward on the one hand (Nabi and Bagley, 1999), and the increasing number of graduates competing for a limited number of job openings in the marketplace on the other (e.g. Court *et al.*, 1994). This has directed lots of graduates nowadays away from traditional life-long jobs toward ‘*portfolio careers*’, ‘*intelligent careers*’ or ‘*boundary-less careers*’ where they build up the skills and traits that add up to their reputation as indispensable organisation resources by changing few jobs, becoming self-employed for a while or seeking new opportunities within the same organisation, which has added to their ability to demonstrate enterprise skills that should help them handle the changes and uncertainties of the dynamic environment (Handy, 1985; Moss-Kanter, 1989; Driver, 1994; Arthur *et al.*, 1995; Winsborough *et al.*, 1997; Collins *et al.*, 2004; Hytti and O’Gorman, 2004; Galloway *et al.*, 2005).

However, when it comes to reality, research conducted by the SCRE Centre at the University of Glasgow stressed that employers nowadays are not satisfied by the level of general employability skills demonstrated by recent graduates who seem to lack some of the

important skills such as utilising technology, demonstrating leadership, working in teams, taking measured decisions and commercial awareness (Lowden *et al.*, 2011), which are all among the important enterprise skills considered in this research. This issue was also emphasised by Cotton (2001), who mentioned that despite being generally satisfied by the level of technical skills demonstrated by recent graduates, employers were not convinced that recent graduates present with a satisfactory level of non-technical skills. Furthermore, the AGR (2008) survey showed that 30-55% of employers find it difficult to find graduates who can present with the necessary level of skills. This lack of skills might be related to the point that the emphasis in enterprise education is generally focused on entrepreneurship rather than enterprise education (Hytti and O’Gorman, 2004; Draycott and Rae, 2010), which is consequently building up some barriers in front of graduates to effectively compete in the marketplace. HEIs are increasingly attending to the issue of developing students’ enterprise skills more thoroughly (Skills and Enterprise Network, 1994; AGR, 1995; Rae, 2008); however, the Leitch (2006) Report called HEIs to work further to meet the expectations of employers in this regard.

2.5. ENTERPRISE EDUCATION

Initially, the objective of enterprise education in the UK was to develop students who are capable of starting and running their own businesses (Brown, 1990; Kirby, 2004). Initial work into enterprise education reflected an interest in utilising this education as a driver for national economic growth (Caird and Johnson, 1988; Caird, 1989a, 1989b, 1990a, 1990b, 1992). However, enterprise education was thoroughly explored at a national level by the Centre for Education and Industry (CEI) in 2001, where they highlighted a lack in research in the area of enterprise education and the confusion surrounding its concept. The Davies Report (2002) was issued following the CEI Report and provided some practical solutions into enterprise education and a more comprehensive definition of enterprise competencies.

Consequently, the concept of enterprise education evolved during recent years from its limited focus on starting-up of new businesses to a more wide-ranging concept that considers relationships between HEIs, industries and the community in such ways that opens doors for new opportunities and allows for sustainability of HEIs' own autonomy (Gibb, 2002). Enterprise education also evolved to cater for enterprising teaching environments that would equip students with a wide range of transferable skills (Matlay and Westhead, 2005). Policies related to enterprise education in the UK and Ireland emphasise the development of a wide range of skills that are applicable not only to those who intend to start their own business but also those seeking employability (Davies, 2002; McLarty *et al.*, 2010).

In general, the main objective of enterprise education in HEIs is to bridge between studying and working environments in ways that would develop graduates who are capable of life-long self-learning and who are better prepared for the real-life working environment (Whiteley, 1995). Furthermore, enterprise education is expected to help individuals in facing some of the increasingly growing social pressures in light of the dynamic changes in societies. Enterprise education started gaining more importance in the UK with the increasing numbers of students enrolling into HE in the 1990s, the increasing numbers of universities in 1992, and the increasing numbers of degree areas available for students, all in light of a dynamic and rapidly growing environment, thus, making this issue a centre of the attention of HEIs as well as families and employers (Knight and Yorke, 2003; McNair, 2003). This issue has also given HEIs that work to develop their students' employability skills a competitive advantage over those that do not (Rae, 2007a). Furthermore, with the increasing financial responsibilities of students in the UK to complete their HE, they are increasingly realising the value of a degree as an initial step that would qualify them to enter the employability market (Yorke, 2004; Rae, 2008), and at the same time raise expectation of the society for graduates with employability skills in return of the increasing investments in learning (Rae, 2007a). Rae

(2007a) argued that strong connections should be drawn between enterprise education and employability despite that achieving such connections is expected to impose challenges on educational systems. The traditional idea of an educated person who can demonstrate strong academic knowledge – but has never actually applied his/her knowledge in practice – is no longer a valid one (RSA, 1978). HEIs should help in equipping students with the necessary generic transferable skills and develop practical learning through examples and work placements, which would ultimately push students to become more responsible of their own learning.

Accordingly, several models for delivering enterprise education have been developed by HEIs over recent years; these models varied from offering entrepreneurship as a separate course within business disciplines, to developments that focused on introducing enterprise embedded within specific courses (Broad, 2007), where the latter is the interest of this research. Accordingly, enterprise education in this research is defined as *‘the processes or series of activities that aim to enable an individual to assimilate and develop the knowledge, skills, and values required to become enterprising’* (Broad, 2007, p.5). In accordance with this definition, Rae (2007a) defined enterprise in an academic context as *‘the skills, knowledge and attributes needed to apply creative ideas and innovations to practical situations’* (p.611). The Department of Education and Training in Australia also defined enterprise education in their Enterprise Grants Report (2012) as provided by the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA), where enterprise education was defined as *‘learning which is directed towards developing in young people those skills, competencies, understandings and attributes which assist them to be innovative, identify, create, initiate and successfully manage personal, community, business and work opportunities, including working for themselves’* (p.3).

The previous definitions have developed the concept of enterprise education to include all its relevant aspects, unlike what it is thought by many people – especially those not involved in entrepreneurship and enterprise – that enterprise is limited to the starting of new ventures and enterprises only. These definitions emphasise that general business and management courses cannot be considered solely to represent enterprise education since part of this education involves integrating enterprise within the curricula – and not just business or some selected curricula. Gibb (2002, 2006) agreed to this and argued that enterprise should not remain focused around business functions that are based on structured knowledge; he mentions that students are now looking for more exciting educational experiences in a context of more risk taking and decision making that fits within the context of their studies. Leskinen (1999) agreed with Gibb that it is not possible for enterprise education to succeed when it is envisioned only within the limitations of starting a new business as part of course and trainings without embedding it within all studies.

Accordingly, there has been a growing interest among HEIs to apply enterprise education over the last two decades in order to improve the level of graduate enterprise skills and accordingly their performance in the marketplace (Skills and Enterprise Network, 1994; AGR, 1995). Enterprise education has grown as an integral part of curricula development in a number of private and governmental business schools (Li and Matlay, 2005) in a way that should aid in the transition of graduates from education to working (Matlay and Westhead, 2005). Yet, further research is still needed in this area (Leitch, 2006).

A number of institutions are putting forward models for enterprise education where they argue that an enterprising model can be achieved through collaborative efforts between departments of the HEI or the formation of formal bodies in the institution that are not run under a specific department – which is usually the business school – to design and deliver

enterprise education across disciplines and departments (Broad, 2007). Rae (2004) agreed to this collaborative model and added that enterprise education must be considered within different contexts of non-business backgrounds as the creative industries, and the same has been argued for science, engineering, and even sports disciplines. Gibb (2006) agreed with Rae (2004) as to the importance of enterprise education and the need for applying an holistic approach in order to achieve the objectives needed. Weinrauch (1984), Gorman *et al.* (1997) and Bechard and Toulouse (1998) also supported a collaborative model and argued that such an approach should include a mixture of knowledge, skills and attitudes. However, upon review of literature it was evident that research investigating the importance of applying enterprise education in an holistic manner within the discipline itself on the one hand and across disciplines on the other is still lacking.

2.6. CHALLENGES FACING ENTERPRISE EDUCATION IN HEIS

The area of enterprise education is a growing area that witnessed a lot of developments during recent years. Yet, enterprise education faces a lot of challenges, especially in light of the post-recession economic situation and the high unemployment rates among young people; Rae (2009) argued that enterprise education might be facing its greatest challenges nowadays to produce secondary and HE graduates who are ready for employment. Furthermore, developing and delivering enterprise education that aims to enhance students' enterprise skills faces a challenge of the lack of practical and theoretical research that defines what enterprise skills are, and which of these can be developed through the learning process and which can be developed outside academic boundaries (AGR, 1995). This has been made more difficult in light of the absence of a clear explanation in literature regarding what the appropriate framework for enterprise education is or should be (Broad, 2007).

Part of the challenges facing the development of enterprise skills also arise from the fact that enterprise education is a relatively new sector that requires new teaching approaches as well as multidisciplinary and cross-curricular teaching methods. Despite the fact that the concept of enterprise education was initially accepted by some HEIs, many other institutions resisted the idea mainly due to doubts about the concept of enterprise education, especially in the early years, where a lot of people viewed it as an encouragement of new ventures and wealth generation (Whiteley, 1995). Thus, the idea was faced with several challenges that are basically centred around the need for institutional capacity and the need for professional educators' development, which were perceived by some as threatening to the traditional practices and cultures of institutions.

In terms of delivering enterprise education, Perren (2003) argued that it is more difficult to develop enterprise skills than to involve technical capabilities of students, which makes challenges of enterprise education not only related to the content but also to the means and processes by which these education programmes are delivered, assessed and accredited (Heinonen, 2007). Hytti and O'Gorman (2004) argued that a thorough understanding of the aims and objectives of enterprise education and the methods used to deliver enterprise education is essential in order to deliver it effectively. However, there are still questions and debates regarding the best teaching approaches that would produce enterprising graduates and the most effective ways of delivering enterprise education (Heinonen, 2007; Pittaway and Cope, 2006; Henry *et al.*, 2005a; Kuratko, 2005); such debates gained more importance after the introduction of the initiative of EHE by the Department for Education in 1987 (Enterprise in Higher Education Training Agency, 1990; Henry *et al.*, 2005b).

Kuratko (2005) argued that HEIs should consider developing their curricula in ways that consider identifying creative students and developing their enterprise skills and

competencies, which brings upon the challenge of introducing enterprise education and expanding of academic curricula without compromising their deliverables (Rae, 2004). This also raises a challenge of what approaches are the most appropriate to implement when teaching enterprise in different settings (Pittaway *et al.*, 2009), and how these skills can be assessed, especially in light of the absence of sufficient research into assessment of enterprise education as will be discussed in Section 2.8.

Enterprise education also requires ability to demonstrate teaching skills from academics' side, which requires training of academics and developing the skills necessary for them to deliver such pedagogies (Survey of Entrepreneurship in HEIs in Europe, 2008). Rae (2007a) and Draycott and Rae (2010) agreed that empowering academics to adopt more enterprising approaches in teaching is essential for developing the suitable environment for developing students' enterprise skills. Yet, several studies have shown that such skills and experience required by academics in delivering enterprise education are still lacking (e.g. Davies, 2002; Birdthistle *et al.*, 2007; Rae, 2008).

The Survey of Entrepreneurship in HEIs in Europe (2008) also highlighted the role of top management in supporting enterprise education at both the level of the institution and the society as a whole. Their role is significant in driving the process and ensuring quick implementation. However, the survey pointed out that enterprise education is usually applied only by those who are personally interested in it, or those who are driven by a personal motivation, a need they identified, or an inspiration from others. Nevertheless, unless there are combined efforts between academics and top management, it is quite difficult to fully succeed in carrying out enterprise education in the institution (Survey of Entrepreneurship in HEIs in Europe, 2008).

Another challenge identified in the Survey of Entrepreneurship in HEIs in Europe (2008) as the most important obstacle to overcome is the availability of dedicated funding whether internally or externally; such funding could support assigning experts, funding extracurricular activities, developing courses and others, which are mentioned in literature as vital for the establishment and continuity of enterprise education in HEIs.

2.7. THE THREE FRAMEWORKS OF ENTERPRISE EDUCATION

As mentioned earlier, enterprise education aims to develop a range of skills in students. The type of skills that result from enterprise education varies depending on the objectives of enterprise education. Of course, objectives of enterprise education vary across different programmes and different institutions; nonetheless, setting clear objectives is essentially important for these programmes to achieve their intended outcomes, taking into consideration that the objectives and methods of these programmes have to be adapted in many instances to ensure that the programmes meet the national needs of the contexts in which they are provided (Hytti and O'Gorman, 2004). In this regard, three general frameworks for enterprise education have been identified in academic literature; these involve education '*about*', '*for*', and '*into*' enterprise, where each framework will be discussed in detail next.

2.7.1. EDUCATION '*ABOUT*' ENTERPRISE

The first aspect of education '*about*' enterprise is mostly a theoretical one that aims to develop students' awareness of the concept of enterprise and entrepreneurship and the management aspects of starting a business and running it, with a focus as well on the role that entrepreneurs and entrepreneurship plays in the development of economies and societies (Jameison, 1984; Gibb, 1999). This education '*about*' enterprise is usually provided to people interested in entrepreneurship education, and may be provided to students in primary or secondary education levels or included as

undergraduate entrepreneurship modules which are usually provided by business schools (Jameison, 1984). The sort of skills developed through education ‘*about*’ enterprise are referred to as ‘*functional skills*’ which are mainly delivered in the UK by business schools through courses which commonly follow teacher-led didactic approaches (Broad, 2007).

Accordingly, the process through which functional skills are acquired in education ‘*about*’ enterprise is referred to as ‘formal learning’ which concerns the theoretical aspects of entrepreneurship and the development of students’ conceptual frameworks without which entrepreneurship cannot be understood (Broad, 2007). Conner (2009) described formal learning as learning that takes place through structured systems and organised programmes. Formal education focuses mostly on developing students’ left-brain side which processes data, numbers, logic and symbols (Lewis, 1987; Orsntein, 1986), where teachers focus initially on acquiring, arranging and instructing the information to students who then absorb that information passively (Barrows, 2000; Wee and Kek, 2002; Wee *et al.*, 2003). After that instructors tend to assess students’ analytical thinking by giving them problem exercises that do not reflect complications and difficulties of real-life problems (Jonassen, 2000; Wee, 2004). Therefore, formal learning generally allows educators to gain more intelligence while they prepare the information they want to provide to students who will only acquire surface learning that does not equip them with the essential skills to handle real-life situations (Wee and Kek, 2002; Wee *et al.*, 2003). According to the Centre for Excellence in Teaching and Learning (CETL) Research Report, the functional skills developed through formal learning include writing business plans, understanding and managing finance, managing legal and statutory requirements, product and service development,

understanding marketing and sales strategies, setting standards for operational performance and understanding business environments (Broad, 2007).

It is argued that education ‘*about*’ enterprise can influence students’ future decisions about becoming entrepreneurs since they get to develop the knowledge about the guidelines and processes of starting and managing a business (Oakey *et al.*, 2002; Vesalainen *et al.*, 1999). Fiet (2000b) supported increasing the theoretical content of courses in order to increase students’ cognitive skills where knowledge can be transferred to students through literature reviews, reading articles, or discussions for example; Pretorius *et al.* (2005) described this as the simplest part of the learning process but saw it as essential for changing behaviour. However, education ‘*about*’ enterprise does not equip students with the necessary enterprise skills to become successful business people (Solomon and Fernald, 1991), neither does it add to their creativity or their ability to act strategically in changing environments (Kirby, 2002). Therefore, education ‘*about*’ enterprise is not seen to be capable – by its self – of producing students who can handle the real-life various problems since they would lack the necessary skills to integrate and relate their knowledge (Berry, 1993; Doyle, 1995; Barrows, 2003), and accordingly, the need to develop students’ competencies within a motivating enterprising environment through education ‘*for*’ and ‘*into*’ enterprise arises.

2.7.2. EDUCATION ‘FOR’ ENTERPRISE

Education ‘*for*’ enterprise is more about preparing entrepreneurs who look up to becoming self-employed, with the specific objective of developing students’ practices and motivating them to start up and run their own business (Jamieson, 1984; Jack and Anderson, 1999; Solomon *et al.*, 2002; Henry *et al.*, 2005a; Edwards and Muir, 2005).

This is basically done by training students about the various managerial aspects with a focus on how to ensure the growth and future development of the business (Henry *et al.*, 2005a), where the learning process here is structured as an entrepreneurial process that would ‘push’ the students into entrepreneurship (Jamieson, 1984; Hjorth and Johannisson, 2006). Gibb (1999) described this objective as ‘*learning to become entrepreneurial*’ which is concerned with developing individuals who are capable of holding responsibility of their own learning, lives and careers. Students would learn the different aspects of starting and running a new business, which is expected to develop in them a sense of responsibility, showing initiative, creativity, organisation, as well as motivation and commitment, which are necessary for the success of enterprises (Broad, 2007).

Development of students’ business and managerial skills in education ‘*for*’ enterprise is mainly achieved through preparation of business plans. However, Gibb (1997) questioned the focus that this education places on producing business plans as an output. He suggested that this emphasis might hold back entrepreneurial responses to later changes in the environment since it does not expose students to hidden or indirect knowledge. Preparing business plans does not mean that students will engage in starting a new business, and in case they do in the future they will not be aided by their previous institutions. Wan (1989) also mentioned this and suggested that there are other criteria besides the business plan that business capitalists refer to when they evaluate new proposals; furthermore, a business plan does not reflect the entrepreneurial skills and abilities of a person despite the fact that developing business plans is a common part of many entrepreneurship programmes. Shepherd and Douglas (1996) also criticised the use of case studies, role plays and simulations which are considered as less traditional methods; they argued that within the boundaries of a

classroom, creative and enterprising thinking cannot be encouraged, which is due to the nature of classrooms where guidelines are implemented and outcomes are expected, thus, mostly encouraging a logical and rational rather than creative way of thinking.

Therefore, the objective of teaching '*for*' enterprise is better understood by encouraging students to try to become entrepreneurial by manipulating various ideas, for example starting a small business in a controlled environment and explaining the skills and knowledge needed to manage the business and be an entrepreneur (Hytti and O'Gorman, 2004), which goes along with the principle that entrepreneurship is a dynamic and changing process that cannot be achieved without innovative teaching methods (Rae, 2004). Yet, Timmons *et al.* (1987) argued that entrepreneurship training programmes can only pass limited knowledge and skills, and that real personal experience is the only way to learn.

Newby (1998) supported that education '*for*' enterprise should be delivered in balance with education '*about*' enterprise. He argued that the development of business and management skills through education '*for*' enterprise should enable individuals to effectively manage the different functional skills developed through education '*about*' enterprise, and, thus, should be combined so that individuals could ultimately have the skills and personal qualities that would allow for behaving entrepreneurially.

2.7.3. EDUCATION '*INTO*' ENTERPRISE

Education '*into*' enterprise, also referred to as education '*through*' enterprise sometimes, deals more with helping individuals adopt an enterprising approach throughout their lives. Education '*into*' enterprise is the interest of this research as described in Section 2.5. Education '*into*' enterprise is linked to the development of

enterprise skills; it focuses on embedding enterprise within the curricula in ways that lead to enriching individual skills and personal traits. Here, creative and student-centred approaches are applied in such ways that involve effective student engagement at all stages of learning. Accordingly, education '*into*' enterprise should help develop individuals' knowledge and attitudes necessary for building their own future, handling their own problems and tackling solutions of the real marketplace (Jameison, 1984).

Education '*into*' enterprise is described to provide an 'added value' by developing personal skills, attributes, and behaviours, and not just providing short term benefits that would leave students unwilling to engage in the dynamic environment (Sullivan, 2000). Therefore, it is not considered to be related only to the business world, but also to the development of people who are capable of adopting an enterprising approach in their lives whether being self-employed or employed in such ways that would create and add value to available careers and institutions (Jack and Anderson, 1998; Gibb, 1999; London and Smither, 1999; Henry *et al.*, 2005a). In their analysis of enterprise education in four European countries Hytti and O'Gorman (2004) found that this objective of education '*into*' enterprise was the most common one in enterprise programmes in primary schools in the countries researched including Austria, Finland, Ireland, and the UK, where the focus was mostly on improving the skills of students without concentrating on business aspects and enhancing their understanding of the working environment through encouraging relationships with the community.

The skills developed through education '*for*' and '*into*' enterprise are referred to as 'behavioural skills' since they affect the way by which different tasks are carried out; these skills are developed through means of 'informal learning' (Broad, 2007).

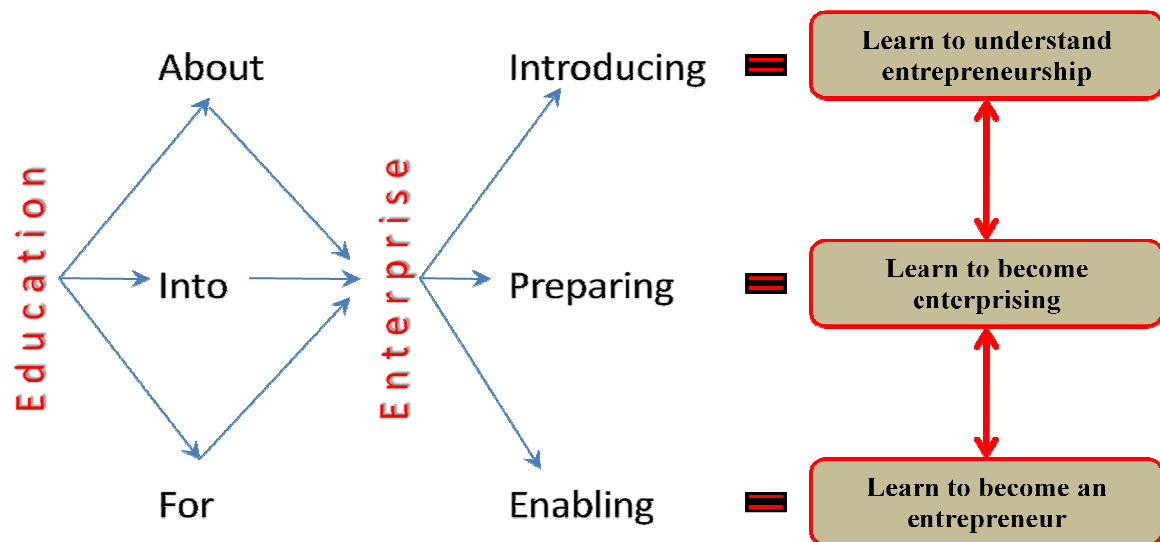
Informal learning is defined as a continuous life-long learning process that is self-directed usually within a social context, and can be adapted to fit certain needs and interests (Falk, 2001; Dierking *et al.*, 2004). Such learning provides individuals with the experience and drive for life-long self-learning and activity (NSF, 2006, Section I, Introduction). According to Broad (2007) and Conner (2009), informal learning is the means by which skills, attitudes, values and knowledge are built daily through multiple ways as experiences, educational impacts and the surrounding environment including people, resources and media. Conner (2009) added that 75% of learning in organisations takes place through informal learning, which often happens unintentionally since the emphasis in learning is mostly on formal learning, thus, leading to losing some of the significant learning outcomes that could be achieved through intentional informal learning.

Setting proper processes and procedures that guide informal learning in organisations through learning development strategies and techniques for managing the teaching and learning process could contribute to a better output of skills development in any organisation (Conner, 2009). In this research, the development of enterprise skills for pharmacy students in HEIs will be investigated. In doing so, the research will look at the aims and objectives of the learning process to evaluate whether the development of these skills happens intentionally where it is included as part of the programme learning outcomes and properly assessed, or unintentionally whereby students develop those skills as part of their informal learning without having them assessed or evaluated.

The following Figure 2.1 shows the three frameworks of enterprise education explained in this section. The figure illustrates the various objectives of learning of each type of enterprise

education and how the range of skills developed would vary according to these objectives. Education ‘*about*’ and ‘*for*’ enterprise are typically provided by business schools to introduce students to concepts of enterprise and entrepreneurship as well as prepare them to become entrepreneurs, respectively. However, education ‘*into*’ enterprise, which is the interest of this research, is generally embedded within disciplines and focuses on developing a range of generic transferable skills in students that would help them adopt an enterprising approach throughout their lives whether employed or self-employed.

Figure 2.1.: The three frameworks of enterprise education



Source: Adapted from Gibb (1999)

To build on the three frameworks of enterprise education described earlier in this section, three general methods for enterprise education were mentioned by Gibson *et al.* (2009) which vary in their extent and objectives of developing enterprise skills; these methods include lectures, the actual running of a new venture during undertaking entrepreneurial learning and experiential or reflective learning as in role plays and simulations. These three teaching methods go along with the three learning approaches described by Guirdham and Tyler

(1992), which include cognitive, behaviourist and experiential learning. In the first method of teaching through lectures, learning is a cognitive process which focuses on active processing of information and giving it meaning and relevance according to perceptual processes; cognitive information is mainly introduced through rehearsal and, therefore, such information is more likely to be processed into long-term memory. This type of cognitive learning is associated with teaching ‘*about*’ enterprise. It was shown in the Survey of Entrepreneurship in HEIs in Europe (2008) that lecturing is still the most commonly used teaching method in enterprise education in HEIs; however, most HEIs are increasingly focusing on applying other methods as well such as case studies, project works, inviting guest lecturers and even business simulations in their curricula. The second method of teaching through actual running of new ventures is associated with behaviourist learning where individuals learn to associate certain behaviours with certain stimuli and is emphasised through *repetition* and *reinforcement*. Such learning is associated with education ‘*for*’ enterprise. The third method of teaching identified by Gibson *et al.* (2009) through experiential or reflective learning, also referred to as ‘involvement learning’, basically means learning from experiences including testing new ideas, analysing findings, resolving problems, reflecting on experiences, giving feedback and others. Therefore, experiential learning goes along with education ‘*into*’ enterprise. The area of experiential learning and its relation to enterprise education is focused on in this research and will be further investigated later on in this chapter, (Section 2.9).

2.8. ASSESSMENT OF ENTERPRISE EDUCATION

Assessment is seen as an integral part of any educational process that should be carefully considered by academics (Banta, 2002). According to the Centre for the Study of Higher Education in Australia (CSHE), assessment is an essential aspect of any learning programme since it helps students realise what is expected of them, in addition to helping in distributing the workload reasonably while allowing students the chance to self-evaluate themselves,

revise, practice and get input about their work. Accreditation requirements are placing more pressure on HEIs to have proper assessment measurements since these measurements are the way to show how successful the learning programme has been in helping students meet the learning outcomes efficiently (Banta, 1999; Martell, 2007). From another perspective, Schwartz and Webb (2002) mentioned that the assessment approaches applied can also affect the way students behave and consequently influence the learning they are undergoing.

Despite this importance of assessment methods, Pittaway *et al.* (2009) highlighted a lack in research investigating assessment of enterprise learning in HEIs following a thorough systematic literature review; they also added that research examining the pedagogy of enterprise education mostly looks at the design and application of these programmes and largely neglects assessment of their efficacy. This lack of research into assessment of enterprise education was also emphasised by Banta (1999), Martell (2007) and Draycott *et al.* (2011) where the latter considered it in the context of secondary education. However, it is worth mentioning here that the difficulty and confusion associated with assessment do not exist in enterprise education only, but are rather evident in most disciplines (Ecclestone and Swann, 1999)

Some researchers highlighted a number of problems in the assessment methods applied. For example Rust (2002) argued that the learning outcomes are not carefully aligned with the assessment tasks and learning opportunities available for students. Yorke (1998) commented that most of the applied assessment methods do not have clear quality standards and encourage students' 'surface' rather than 'deep' thinking. Race (2003) concluded that weakness in the assessment methods are mainly due to academics not considering what they are supposed to consider in assessments, basing their decisions on undependable personal opinions, and also failing to clearly communicate the learning outcomes with students.

Pittaway *et al.* (2009) argued that the assessment problems discussed earlier are related to challenges associated with enterprise education as well. On the one hand, the terms ‘enterprise’ and ‘entrepreneurship’ are often used interchangeably despite that each one is associated with different outcomes, not to mention that there is still a lack of understanding about how ‘entrepreneurs’ and ‘enterprising people’ learn (Pittaway and Cope, 2007), which increases the challenge of setting suitable assessment approaches since effective assessment is essentially related to understanding how students learn. On the other hand, Pittaway *et al.* (2009) mentioned that the assessment approaches already in place might be too traditional and not suitable for assessing the intended learning outcomes that academics should be measuring. Furthermore, they commented on the debates and lack of clarity associated with enterprise education (Gibb, 2002), which impose more challenges on setting clear learning outcomes before having assessment practices that can go side-by-side to ensure effective achievement of these outcomes.

Several authors (e.g. Ramsden, 1992; Boud, 1995; Brown *et al.*, 1997; Race, 2003) argued that applying traditional assessment methods is not sufficient to assess suitably what academics want to assess. Pittaway *et al.* (2009) identified a number of traditional and innovative assessment methods in their study on seven focus groups to explore forms of assessment strategies in enterprise education; among the innovative methods identified were posters, presentations, role plays, placements and organising conferences, while traditional methods included examples as exams, reports and self-assessments. Yet, Pittaway *et al.* (2009) highlighted that there are methods for delivering enterprise education and methods for assessing it, and that applying traditional or innovative methods can take place in either or both; in this regard the authors pointed out the need for further research investigating the association between delivery methods and assessment methods since lack of application of innovative assessment methods should not always mean a lack in application of innovative

delivery methods. The study also highlighted that innovative assessment methods in enterprise education may have to be considered, but questioned whether different assessment strategies should be considered when addressing the different types of education ‘*about*’, ‘*for*’ and ‘*into*’ enterprise.

2.9. RELATING ENTERPRISE EDUCATION TO EXPERIENTIAL LEARNING

Young (1997) agreed that enterprise is a subject that focuses almost totally on activities and gaining of experiences and practical skills, which could not be done through the traditional teaching methods, and therefore should not be taught using theoretical approaches. Traditional teaching methods which are mainly used in entrepreneurship education, as for example literature reviews, written examinations and lectures, are no longer perceived as appropriate nor activating for students (Davies and Gibb, 1991; Gibb, 2002; Sogunro, 2004). The theoretical and didactic approach followed in these traditional methods mainly focuses on providing general knowledge in various business areas such as marketing, finance and HR (Meyer, 2001). Such an approach is mainly applied to educate students about writing business plans and helping them to comprehend the decision making process, as well as issues related to handling the resources and financing of organisations and how to manage and develop enterprises, without assessing students’ readiness to become enterprising (Solomon and Fernald, 1991; Hisrich and Peters, 2002; Rae, 2004). Therefore, enterprise education should be seen as a unique activity that is distinguished from the traditional education approaches typically seen in management courses (Gibb, 1999; Solomon *et al.*, 2002).

The skills developed through traditional approaches are important but not sufficient as argued by Rae (1999). Traditional approaches have not succeeded in enriching students’ relationships with the business environment nor their ability to handle various real-world

problems and situations; these approaches are often criticised for focusing on students' passive receipt of information and are seen as unsuccessful in developing students' active participation and critical thinking as opposed to other innovative teaching approaches (Tiwari *et al.*, 2006). Traditional learning may help students develop skills such as expressing themselves in writing and becoming responsible for their own work, but it does not help in enhancing skills as self-learning, planning, leadership, working in teams, and others (Jack and Anderson, 1999; Rae, 2004). Thus, this learning does not help students cope with the rapidly growing and changing knowledge in the world, neither does it help them realise the context of the content theory they are learning (Savery, 2006). Obviously, HEIs were more successful in delivering theoretical knowledge and its relevant analytical thought processes, but neglected in many instances the provoking of students imagination and creativity through more innovative learning activities (Jack and Anderson, 1999; Kirby, 2004).

Among the factors that contribute to the low level of skills developed through traditional approaches is that these approaches often apply a single textbook for students to refer to, where such textbooks have been described as '*static*' (Berry, 1993; Hamel and Parahald, 1994; Gronroos, 1989; Gummesson, 1987) since they limit students' learning within certain boundaries. Accordingly, there is a growing emphasis on the need for having curricula that enhance life-long learning, and curricula that emphasise student-centred learning which helps in developing students' transferable skills, especially when coupled with personal self-empowerment of the students (Guirdham and Tyler, 1992). Self-learning skills are essential for students, especially that nowadays most textbooks and references become outdated quite soon after they are published, and without such skills students would be incapable of handling contemporary issues and following up on the latest changes (Berry, 1993; Doyle, 1995; Wee, 2004).

Gibb (1993a, b, c) argued that learning should involve embedding of behaviour and not just knowledge and understanding; he also argued that an enterprising learning approach is the opposite of a didactic one, where the development of skills constitutes an inseparable part of enterprising approaches. This confirms with Collin's (1979) definition of the teaching process as a relationship that does not result only in transfer of knowledge, but also in skills and competencies through learning and experimentation; Collin (1979) defined mentoring as '*A protected relationship in which learning and experimentation can occur, potential skills can be developed, and in which results can be measured in terms of competencies gained rather than curricular territory covered*' (Collin, 1979 in Sullivan, 2000, p.169). Beach (1980) agreed with this and defined learning as '*the human process by which skills, knowledge, habits and attitudes are acquired and altered in such a way that behaviour is modified*' (p.22), and Honey and Mumford (2006) also proposed that learning happens '*when people can demonstrate that they know something that they did not know before (insights and realisation as well as facts) and/or when they can do something they could not do before (skills)*' (p.1). All these definitions emphasise a change in behaviour as a cause or effect of learning, and emphasise the social aspects of learning rather than viewing it merely as a cognitive process; so in addition to knowing something cognitively and understanding it, the learning process has to be associated with a change in actions (Guirdham and Tyler, 1992; Gibb, 1993a, b, c), which is important since gaining of the cognitive knowledge by people does not necessarily always lead to a change in their behaviour; and in such cases it cannot be said that they have learned (Beach, 1980).

Consequently, there is a growing emphasis on delivering enterprise education through processes that engage students in various classroom activities (Fiet, 2000b) as opposed to didactic learning approaches where students are listeners and learning is tutor-centred. Tutor-centred approaches are widely practiced and are referred to as passive or reactive since

learning is based on students acquiring information without empowering them or enhancing their skills to adopt a continuous life-long learning process. On the other hand, learning through methods that provoke thoughts such as projects, presentations, videos and case studies that encourage students to learn about both the 'subject' and 'process' are referred to as *learner-centred or student-centred* approaches. Student-centred learning is of great importance, especially with the vast and continuous information changes and updates; it helps students take responsibility of their own learning and decide on what needs to be studied. In this regard, Dolmans and Schmidt (2000) argued that learning should be an active process of constructing knowledge, rather than a passive process of memorising information; they also argued that involving students in the learning process helps them relate their knowledge and structure new knowledge over existing one. Hamel and Parahald (1994) also discussed the concept of 'generative learning' as an essential one for enhancing students' abilities to 'create knowledge' rather than 'waiting and learning from it'.

Accordingly, enterprise education does not focus on the traditional role of academics as lecturers, but rather as mentors and facilitators who can enhance students' learning by helping them to '*dissect, reflect, and learn*' from their experiences (Deakins *et al.*, 2002). This change from passive to active learning by students has imposed a lot of changes on HE and placed further demands on students, but has been shown to be very effective in enhancing students' understanding about the learning process and development of their enterprise skills (Guirdham and Tyler, 1992). Gibb (1987) supported having such active learning environments, and added that time and place flexibility alongside an active teaching approach are expected to enhance students' understanding of problems and concepts related to them. Such environments are expected to help students learn from their mistakes and, thus, develop their skills of problem solving by learning to develop solutions and answers to various problems rather than having the solutions ready and prepared by their mentors (Collin, 1979;

Birdthistle *et al.*, 2007), thus, encouraging them to think for themselves and develop independence and self-reliance in ways that enhance their ability to handle ambiguous real-life situations (Carland, 1982).

Enterprise education is no longer seen as something that should be limited within the boundaries of academia, and a growing number of activities, courses, trainings and literature have been produced to reflect this importance. Introduction of EHE by the Department for Education in 1987 has triggered more focus on enterprising educational approaches that involve holistic learning and personal interactions with students as opposed to the traditional didactic approaches that were deemed ineffective for delivery of enterprise education (Hynes, 1996). Enterprise education should help students link theoretical aspects with real-life practical situations and enhance their ability to develop rational solutions to adapt them (Carland, 1982). Timmons and Stevenson (1985) also supported combining practical and theoretical learning activities and saw that as the best way to develop life-long learning; they suggested that cognitive and analytical skills can be gained through various marketing and management courses, but more critical skills as judgment, decision making, responsibility, communication, and others can only be learned through participation in real-life situations. Accordingly, enterprise education involves more ‘deep’ learning as opposed to ‘surface’ learning from the students’ side. ‘Surface’ learning focuses on memorising information for the purpose of recalling it in an exam later on, while ‘deep’ learning focuses on understanding and connecting information and trying to relate it to various life applications (Guirdham and Tyler, 1992; Gibbs, 1990). Surface learning might be suitable for teaching students basic knowledge which they will have to – later on – analyse more thoroughly and integrate with other information, but relying solely on this learning in the teaching process will result in a negative impact on the quality of learning. According to Gibbs (1990),

students who learn through ‘surface’ learning only lack understanding of the learning process and ability to integrate knowledge.

Such advantages of enterprising approaches to learning are not available in didactic teaching which happens to be more rigid without allowing students to engage in teams and tackle problems. Table 2.2 lists the differences between didactic and enterprising learning approaches as mentioned by Gibb (1993a, b, c). Enterprising learning is mentioned to increase students’ independence and stimulation to learn by giving them the opportunity to share responsibility in their learning process by taking part – with their educators – in deciding and planning what they need to learn and how (Perry *et al.*, 1986; Brockhaus and Horowitz, 1985; Hamilton, 1987; Roberts, 1991; Cross, 1981; Cooper, 1981; Evans and Leighton, 1990), where students would be expected to develop more ‘ownership’ of their learning (Fiet, 2000b; Hannon, 2005). Accordingly, students will play an active role in enterprising learning; they will engage in the learning process through real-life situations that would help them work under stress and learn from their mistakes in an adaptable and informal learning environment. Such learning environments also help in developing students’ team skills and allows them to discover learning opportunities under the supervision of their tutors.

Table 2.2.: Didactic and enterprising learning modes

Didactic	Enterprising
<ul style="list-style-type: none"> • Learning from teacher alone • Passive role as listener • Learning from written texts • Learning from “expert” frameworks of teacher • Learning from feedback from one key person (the teacher) • Learning in well organised, timetabled environment • Learning without pressure of immediate goals • Copying from others discouraged • Mistakes feared • Learning by notes 	<ul style="list-style-type: none"> • Learning from one another • Learning by doing • Learning from personal exchange and debate • Learning by discovering (under guidance) • Learning from reactions of many people • Learning in flexible, informal environment • Learning under pressure to achieve goals • Learning by borrowing from others • Mistakes learned from • Learning by problem solving

Source: Gibb (1993a, b, c)

The previous discussion shows the importance of engaging students in active experiences during the educational process, where they could ‘learn by doing’ and relate the theory they learn to practical applications in the real-world. Thus, education ‘into’ enterprise should utilise experiential learning methods in which learning is achieved by doing. Experiential learning was defined by Revans (1982) as ‘*a means of development, intellection, emotional or physical input that requires its subjects, through responsible involvement in some real complex and stressful problems, to achieve intended change to improve their observable behaviour in the problem field*’ (p.12). Experiential learning methods utilise means such as case studies, group discussions, workshops and role plays, which are described as interactive and participative learning tools that help in developing a range of skills in students through enhancing their participation in the learning process, and encouraging their reflection and feedback on what is learned.

Kolb (1984), the founder of the experiential learning theory, suggested that experiential learning can enhance students’ understanding of the real-world where they would be expected to rely on themselves. In his theory, Kolb (1984) argued that experiential learning should introduce changes in concepts as well as behaviour through experience. Learning here is viewed as an ‘*active process*’ that is moved forward by the learner. This brought on a more ‘*generative*’ view of learning which includes bringing out new experiences in advance rather than adapting to changes after they happen (Hamel and Prahalad, 1994).

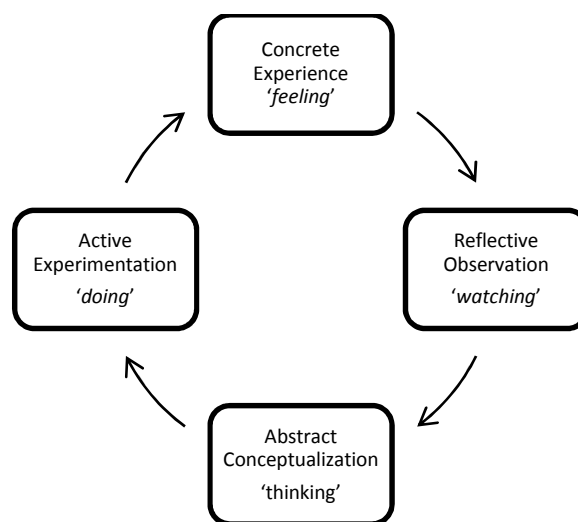
The experiential learning model involves several steps but does not assume that they happen sequentially. Learning is seen as a deliberate process that starts with an ‘*intention*’ that is triggered by a ‘*triggering event*’ (Binks *et al.*, 2006; Schindehutte *et al.*, 2000), which – in university settings – usually comes downward as an opportunity from mentors to students. Deakins and Freel (1996) referred to such events as ‘*critical incidences*’ that lead to

experiential learning by allowing students to think strategically and build plans. These incidences have been defined by Barrows (2000) as tasks that take place often and have a high impact. Students will organise their experience based on theory and, consequently, learning will happen as a result of theory and experience together (Kolb, 1984). Williams (1998) also agreed that learning is the outcome of experience, and has to be ‘goal directed’.

The following Figure 2.2 shows Kolb’s learning cycle introduced by Kolb (1984). The figure shows Kolb’s conception of learning as a continuous process rather than a set of outcomes. Here, learning is viewed to involve four basic stages. Learners can start the learning process at any stage depending on the situation, where learning can be best achieved when the learner goes through the four stages and shows ability to achieve balance between them (Kolb, 1984). *Concrete experience* involves the ‘feeling’ part of experiencing or encountering a new experience or re-interpreting an existing one; this can happen in any real-life situation or through problems and situations presented to students during their education. *Reflective observation* involves the ‘watching’ part, and originates from the learner’s evaluation of experiences to see if there are any discrepancies between the experience they are facing and their understanding, which is usually a natural process that could take place through discussions with mentors and colleagues. Articulating such reflections in a systematic way is necessary for individuals to build on what they learned in order to improve their application of experiences in the future; otherwise experiences would be repeated in the same manner over and over without any improvement or avoidance of mistakes. This emphasises the importance of the next stage of learning, *abstract conceptualism*, the ‘thinking’ part, where reflections lead to new ideas or alteration of existing concepts. Here, learners conclude and learn from their experiences based on logical processing of ideas and thorough understanding of situations; this is usually achieved by referring to relevant literature or by attending training activities. Accordingly, reflection can be seen as the stage that bridges theory with

the processing of ideas and situations, thus, allowing learners to build on their future experiences. The next stage, *active experimentation*, the ‘doing’ part, is where the learner shows ability to plan changes and influence others based on the conclusions derived from the previous stage, to see what the results are. By implementing these changes the cycle starts again with application of a new experience and so on. According to Kolb (1999), concrete experience involves right-brain thinking while abstract conceptualisation involves left-brain thinking.

Figure 2.2.: Kolb’s Learning Cycle



Reproduced from Kolb D.A. (1984). *Experiential Learning experience as a source of learning and development*. New Jersey: Prentice Hall.

Kolb referred to this learning as experiential since it involves experience as an essential source of learning and improving, where he saw that theory mainly develops from reflection on experiences (Kolb, 1984). Reflection can be done through one’s own-reflections in portfolios or logs, or by reflections from others through feedback, peer assessments or mentor comments for example. This allows students to get reflections from their peers (Heinonen, 2007), and enhances their abilities to self-reflect on their own and others’ experiences, which should ultimately help them make better interpretations and gain wider perspectives (Barrows, 1988; Gibb, 2002). This has also been described by Droege (2003) to help in

developing more ‘reflective practitioners’. Thus, experiential learning can be viewed as an important component for delivering education ‘into’ enterprise where learning is essentially interactive and student-centred.

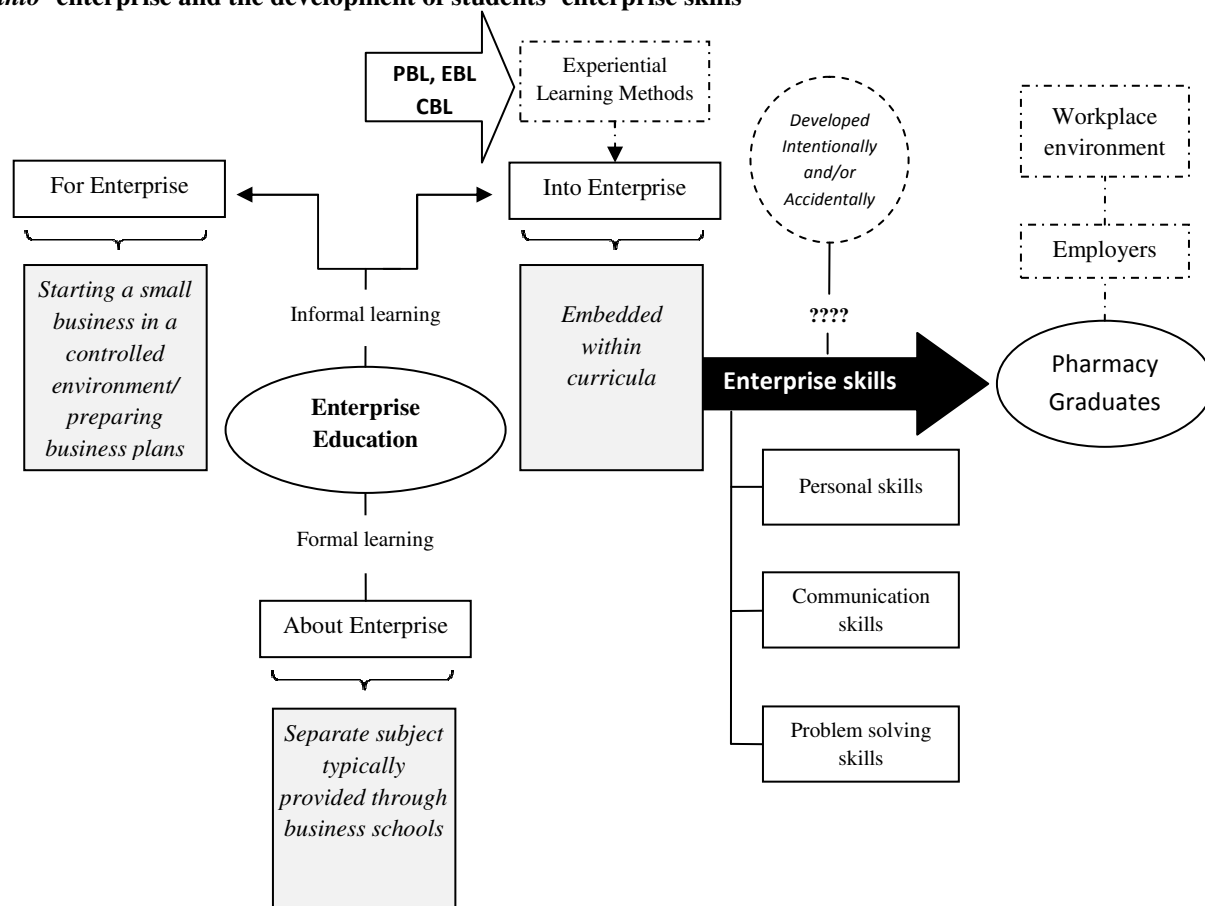
Several innovative learning approaches to deliver experiential learning have been discussed in academic literature like PBL (e.g. Barrows, 2000; Savin-Baden, 2000; 2003; 2004; 2007), opportunity-centred learning (e.g. Rae, 2003), team-based learning (e.g. Hassan, 2011; Stewart *et al.*, 2011), action learning (e.g. Revans, 1991; Smith, 2001), EBL (e.g. Price, 2003; Kahn and O’Rourke, 2004; Savin-Baden, 2007), CBL (e.g. Chi-Wan and Lopez-Nerney, 2005; Savery, 2006; Richards and Inglehart, 2006; Srinivasan *et al.*, 2007) and new venture-based learning (e.g. Gibson *et al.*, 2009). Nevertheless, some of these approaches are commonly applied in the context of entrepreneurship rather than enterprise education like opportunity-centred learning (Rae, 2003), action learning (Revans, 1991) and new venture-based learning (Gibson *et al.*, 2009).

2.10. DEVELOPING THIS RESEARCH FRAMEWORK

From the previous review of academic literature related to enterprise education and the development of enterprise skills, it became possible to develop this research framework. The following Figure 2.3 represents the conceptual framework of this research. Among the three types of enterprise education, the figure represents education into enterprise as part of informal enterprise education, whereby students develop a range of transferable enterprise skills through the learning experiences embedded in the curricula. Experiential learning is presented in this framework as a means for delivering education ‘into’ enterprise; such learning can be delivered through several learning approaches some of which are PBL, CBL and EBL. The enterprise skills developed vary between personal skills, communication skills and problem-solving skills which are all essential employability skills that are highly valued

by employers in the workplace environment. Thus, graduates who are capable of demonstrating these skills are expected to find employability easier since they are more likely to satisfy the demands of employers and the demanding workplace environment.

Figure 2.3: Research Framework: Utilizing experiential learning as a means for delivering education ‘into’ enterprise and the development of students’ enterprise skills



Source: Adapted from Refai (2009)

This research aims to investigate the extent of the contribution of experiential learning methods in developing enterprise skills for pharmacy students during the educational process in HEIs. In doing so, the research will examine the various learning activities applied at pharmacy schools and how they are applied and assessed in the context of experiential learning to develop students’ enterprise skills. In order to achieve this, it is necessary to review the literature related to the application of innovative learning approaches related to experiential learning in order to identify the latest issues regarding these learning approaches

in pharmacy disciplines as well as in others. Such approaches will be the focus of the next chapter.

2.11. CONCLUSION

This chapter provided theoretical conceptions about enterprise skills and enterprise education. A general template of enterprise skills as perceived in this research was provided alongside an explanation of enterprise education approaches applied for developing these skills. In this regard, education '*into*' enterprise was explained and justified as the interest of this research, where experiential learning methods were described as an essential component of this type of education.

Additionally, the chapter discussed the confusion surrounding the concepts of enterprise skills and enterprise education, and pointed out the importance of defining exactly what is meant by them when applying them in any context. On the other hand, the chapter also highlighted the importance of enterprise skills and their relevancy to graduates, especially with the lack of satisfaction among employers by the level of enterprise skills demonstrated by recent graduates in the marketplace. Consequently, the chapter highlighted the call in research for HEIs to adopt more holistic teaching approaches and to embed more innovative learning activities within their curricula to help in equipping graduates with a better level of transferable enterprise skills. In this regard, the chapter discussed the gaps that face HEIs when implementing enterprise education, while at the same time emphasised the need to address the poor techniques applied in assessment of the learning outcomes of this education. Such issues were found to be of high importance and relevance to this research, and will be touched upon later on in the Discussion Chapter at the end of this thesis.

The following chapter will describe some of the main innovative learning approaches that fall under experiential learning; this will include a review of the objectives and processes of delivering these approaches as well as a review of their assessment methods.

CHAPTER THREE:

INNOVATIVE LEARNING APPROACHES APPLIED AS PART OF EXPERIENTIAL LEARNING

3.1. INTRODUCTION

The previous chapter discussed enterprise education and enterprise skills as referred to in this research. The chapter also highlighted the significance of experiential learning and its relation to education ‘into’ enterprise. Since this research aims to investigate the extent to which experiential learning activities are utilised for the development of enterprise skills in the pharmacy education context, it becomes necessary to discuss the experiential learning approaches applied in pharmacy education in more depth.

Accordingly, this chapter will discuss some of the most commonly applied learning approaches applied in pharmacy education as part of experiential learning. In a study by Jungnickel *et al.* (2009), the authors called for addressing future competencies in professional education and highlighted PBL and EBL as significant student-centred learning approaches that should be considered to achieve this. PBL and EBL have a successful history of application in the pharmacy education context even though the latter has not been reported to have the same strong influence so far as PBL (Stewart *et al.*, 2011). Another study by Abd Rahman (2010) also pointed out the significance of CBL as an active experiential learning method that is applied in pharmacy education. Accordingly, these three forms of experiential learning methods will be discussed in this chapter since they are the most commonly applied in pharmacy education which is the context of this research.

In this discussion of the main experiential learning methods applied in pharmacy education, more focus will be given to review the literature related to application of PBL in specific. The

reasons behind this focus on PBL are explained in the Introduction Chapter (Section 1.3), which explains also how PBL provides a good example of experiential learning and the various aspects related to its implementation at HEIs.

3.2. PROBLEM-BASED LEARNING (PBL)

PBL is one of the innovative learning approaches that have been successfully applied over the last 30 years across a range of different disciplines. Being a student-centred learning approach, PBL is shown to empower students and encourage them to develop the ability to demonstrate a range of skills. In pharmacy education, PBL is increasingly applied and continues to gain acceptance in this discipline as well as in other health-related disciplines as medicine and nursing. A review of recent PBL research suggests several advantages and disadvantages, as well as barriers and challenges to its implementation. This section presents the theoretical conceptions derived from the review of previous research into PBL in general, in addition to PBL as applied in pharmacy education. It specifically elucidates the status of PBL research, the need, objectives and outcomes of it, as well as the challenges and barriers facing its application.

3.2.1. *PBL: AN HISTORICAL BACKGROUND*

PBL was first applied as a pedagogical approach in 1969 at the Medical School in McMaster University, Canada, with the objective of enhancing students' efficient and effective problem solving. The idea was brought forward after a criticism of medicine graduates' conceptual skills and ability to apply their knowledge in practice, which was revealed following a general examination of medical education in North America (Johnson and Finucane, 2000; Savin-Baden and Major, 2004). The critical thinking and problem-solving skills of young physicians were also criticised (Gallagher *et al.*, 1995). McMaster University, Canada emerged as a pioneer in initiating patient

problems that mimic real-life situations in medical practice, where one of its academics, Harrold Barrows, started laying the basic guidelines for application of PBL.

Two other medical schools followed McMaster University in providing a significant input into the development of PBL: the University of Maastricht, Netherlands, and the University of Newcastle, Australia. The three universities benefitted from the experiences of each other and were able to introduce improvements into medical education through major developments in PBL (Savin-Baden and Major, 2004). This positive experience spread worldwide where many medical schools around the globe have adopted the McMaster PBL approach in their curricula (Bligh, 1995; Savin-Baden and Major, 2004).

PBL encourages students to take responsibility of their own learning since students participate in deciding their learning issues and educational needs (Dolmans and Schmidt, 2000). By making students responsible for their own learning, PBL also enhances students' motivation, self-learning and problem solving skills (Savery and Duffy, 1995; Savin-Baden and Major, 2004), and also enhances students' ownership of their learning (Savery, 1998; 1999). Due to this, PBL started to be incorporated into other health professions as well over the past thirty years (Tavakol and Reicherter, 2003; Savery, 2006). In the US for example, PBL was incorporated into veterinary medicine, pharmacy and nursing. In Australia, it was incorporated into nursing. PBL was also incorporated into occupational therapy, medicine and social work in the UK. This was followed by a successful incorporation of PBL into non health professions as law, engineering, architecture, business, economics, politics and forestry (Johnson and Finucane, 2000; Tavakol and Reicherter, 2003; Savin-Baden and Major, 2004). Besides its growing application in many disciplines, PBL also

continues to grow as a learning method at different learning levels in elementary, middle and high-schools, as well as professional schools (Torp and Sage, 2002), in addition to HE (Bridges and Hallinger, 1996) and postgraduate masters programmes (Stinson and Milter, 1996). Due to this growing significance, PBL has been described by Davis and Harden (1999) as '*one of the most important educational developments in the past 30 years*' (p.130).

3.2.2. WHAT IS PBL?

PBL is a well-known learning approach that is based on reflective learning methods (Droege, 2003; Wee, 2004). PBL has been successfully applied as a reflective learning approach to develop students' intellectual skills in many disciplines as medicine, pharmacy, nursing and others (Cisneros *et al.*, 2002). Such skills involve knowledge retention (Haworth *et al.*, 1998), problem solving, critical thinking, and self-directed learning (Lubawy and Brandt, 1998; Cisneros *et al.*, 2002), which are among the important enterprise skills considered in this research. Furthermore, PBL was described by Torp and Sage (2002) as an experiential learning approach where learning is centred around investigating and resolving disordered problems, often interdisciplinary, that reflect real-life situations. Accordingly, and in this sense, PBL can be regarded as a means for delivering education '*into*' enterprise whereby a range of enterprise skills are developed through the various learning activities embedded within the curricula.

Despite that several definitions of PBL are provided in literature, all definitions agree that learning in PBL is centred around a problem, which could involve any situation students are likely to encounter later on in their career lives. These problems are sometimes referred to as critical incidences (e.g. Deakins and Freel, 1996), while at

other times they may be described as triggers since they aim to trigger leaning and not to come up with a quick resolution or plan (e.g. Wee and Kek, 2002). Due to this, the concept of PBL may sometimes overlap with other learning concepts which happen to have problems or situations as the centre of their learning process (Poikela and Poikela, 2005). Hmelo-Silver (2004) argued that PBL is an instructional approach in which students learn by working together on messy problems which do not necessarily have one single right answer. Boud (1985) described PBL as *'learning that is centred around a problem, a query or a puzzle that the learner wishes to solve'* (p.13); he also argued that the nature of the problem differs according to the context of the discipline and the intended learning outcomes. Boud and Feletti (1997) described PBL as *'a style of learning in which the problems act as the context and driving force for learning'* (p.6). Boud and Feletti (1997) and Barrows (1988) agreed that the learning process in PBL should not be viewed in a single specific way, but rather be seen as a creative process that can take several forms.

PBL is different from problem solving since the latter comes after the relevant knowledge and problem-solving skills are acquired. Csikszentimihalyi and Getzel (1971) described the differences between 'presented' and 'discovered' problems. Presented problems are mostly applied in traditional teaching where the students are familiar with the method and the solution and only need to choose the right procedural method to reach a solution to the problem. However, in discovered problems students structure a problem which is not formulated for them but has to be identified, and develop an approach for resolving it; this is seen as a more critical approach that requires more skills. PBL applies discovered problems where students are given an ill-defined problem before acquisition of relevant knowledge, and then engage with this problem to decide the necessary research and learning needed to resolve it

effectively (Shaw *et al.*, 2006). So learning involves a process of constructing new knowledge (Gijsselaers, 1996; Davis and Harden, 1999; Hmelo-Silver, 2004). Here, the student's role is transformed from a passive one of memorising facts to an active one of building and relating knowledge (Dolmans and Schmidt, 2000). Through small group interactions, PBL stimulates students to use the knowledge they have to build explanations about the problem in hand, which in turn will develop into processing and comprehension of new knowledge (Norman and Schmidt, 1992).

The learning process in PBL occurs in small groups of usually six to eight students who are led by mentors or facilitators (Barrows, 2000). Students are exposed to real-life situations which are expected to help them become more independent and life-long learners by deciding their points of strength and weakness, and deciding the knowledge they need to pursue (Barrows and Tamblyn, 1980). Through this group learning, students are also expected to develop their reflectivity skills by allowing them to experience real-life situations and think about them in a reflective manner. Dewey (1944), an early philosopher whose philosophies are embedded in PBL, suggested that students should be encouraged to seek solutions to real-life problems and then reflect on the whole problem solving process. Dewey saw that reflection can take place by 'thinking about' different situations, but argued that a critical and analytical approach to reflection can only be achieved if real-life problems are involved. This is supported by the fact that, over their course of experience, practitioners were seen to develop more abilities to reflect on their intuitive knowledge, and moreover utilise these abilities to handle unexpected and ambiguous situations of the practice (Schon, 1983). Schon (1983) aimed to show the importance of exposure to emerging real-life situations since many practitioners' abilities to criticise or challenge their own knowledge and 'tacit understandings' seem to

decrease over time with more exposures to similar cases and situations, which causes them to fail in coming up with a new meaning or understanding of unique or unclear hidden aspects. This added more emphasis as to the importance of the *content and process* of delivering PBL, and emphasised that the skills and behaviours of those who deliver such education also play a major role in the educational process.

Thus, PBL should go beyond the boundaries of traditional education to achieve its objectives. Here, it is important to point out that despite the increasing number of learning activities applied in the UK during the last ten years or so – like for example consultancy reports, learning sets and logs, observation and mentoring (Hartshorn, 2002), a large number of academics still rely significantly on cognitive and theoretical learning rather than practice, reflection and involvement (The Young Enterprise, 2000), and even when an experiential approach is applied it often lacks a conceptual base or in other words lack the theoretical understanding of the philosophies underpinning this learning (CEI, 2001; Davies, 2002).

3.2.3. OBJECTIVES AND OUTCOMES OF PBL

Current research largely discusses the objectives of PBL. PBL is centred around solving ill-structured practical problems through which students can gain better knowledge and understanding of the content of materials. These problems are provided to students within a certain context where they seek to understand and resolve the situation (Barrows, 2000). The two main general goals of PBL can be summarised as developing a set of competencies or skills, and developing problem-solving skills that are essential for life-long self-learning (Engel, 1991); however, the specific objectives of PBL vary according to the context and discipline in which PBL is applied. Hammel *et al.* (1999) stressed that the more relevant the problem is to the

context the better the learning outcome. Thus, it can be said that the significance of PBL lies in the proficient selection of problem cases that reflect professional practice cases (Davis and Harden, 1999). With practice, students are expected to develop more confidence and independence, and to demonstrate better communication skills and team spirit, which should ultimately help them tackle future practice issues.

Furthermore, there is a general agreement that PBL focuses on what students should be able to perform following the course and not what they should know. The reason for this focus is that knowing does not necessarily lead to doing and acting by students. However, being able to handle situations and solve various problems would mean that students have the knowledge and at the same time are capable of applying and using it to solve related problems (Barrows, 2003). This is basically the interest of the marketplace since employers want graduates who are able to handle various situations, and not graduates who list down their knowledge.

In comparison with traditional instructional methods, a twenty-year meta-analysis study by Albanese and Mitchell (1993), and another study by Vernon and Blake (1993) showed that PBL learners gained equal knowledge levels and better clinical problem-solving skills compared to those learning through traditional methods in medicine education contexts. However, Sanson-Fisher and Lynagh (2005) and Savery (2006) contended that despite that PBL was proven to be superior to traditional methods in many ways, there is still a need for more studies to prove the short and long-term benefits and effectiveness of this learning.

Objectives of PBL courses are usually set as course objectives or ‘exit outcomes’, which refer to what students should be able to perform at the end of the course (Wee and Kek, 2002). PBL focuses on equipping students with continuous self-learning

skills that enable them to decide on what they need to learn, and accordingly seek relevant and valid knowledge in the area of interest. PBL has been mentioned to help students in developing a range of skills as problem-solving, critical thinking, communicating and appreciating the need for life-long learning as well (Cisneros *et al.*, 2002). It is also argued that HEIs that apply PBL offer their students the opportunity to enhance this range of skills (Ross *et al.*, 2007). Furthermore, besides focusing on strengthening students' academic achievement and skills, PBL provides students with a motivational environment that enhances their potential for acquisition and structuring of knowledge so it can be recalled later on (Bayard, 1994; Kilroy, 2004; Tiwari *et al.*, 2006).

Besides the motivational learning environment that supports developing students' knowledge and skills, Tiwari *et al.* (2006) proposed that PBL contributes to developing learning by encouraging self-regulated learning which makes students feel more relaxed during the learning process since they would know what their expected learning outcomes are, this will also relate to enhanced self-efficacy since students will start to raise their expectations about how well their achievements will be. Albanese (2000) agreed to this and mentioned that PBL guides students to set their own learning goals and seek resources, and, thus, expected to enrich their knowledge through self-directed learning. The learning problems applied in PBL are also expected to enhance students' analytical skills since students will involve in understanding, exploring and analysing those problems and accordingly in elaborating and documenting their findings (Wee, 2004). In doing so, PBL helps students develop and apply their critical, reflective and conceptual thinking skills, in addition to enhancing their self-directed learning skills (Poikela and Poikela, 2005). Furthermore, PBL courses enable students to dissect and reflect on the various situations that they

handle with the purpose of identifying possible areas of improvement. This is promoted through questioning and elaboration on the newly constructed knowledge through group discussions, which is expected to enhance students' oral and written communication skills since they would have to share their ideas with others and get feedback from them, which would also improve students' negotiation skills and effective team leading skills (Wee, 2004).

Up till now, most of the comprehensive PBL studies have been conducted in the field of medicine which witnessed the longest history in PBL. Barrows (2000), who set the fundamentals of this learning, suggested that the main objectives of PBL in medicine include aligning students' knowledge so that it can be better recalled and applied in the future in relevant clinical contexts, enhancing students' questioning and reasoning skills in medicine, improving their life-long continuous learning, and making them more motivated and aspiring to learn.

In the pharmacy context, significant experience has also been gained about PBL in the past few years, which developed more confidence about its process, assessment and expected learning outcomes. In this regard, Cisneros *et al.* (2002) searched the *International Pharmaceutical Abstracts (IPA)* to identify PBL research specifically in the field of pharmacy and looked into examples of its application in this context. Their search identified the outcomes of PBL and summarised them into two main areas: the effect of PBL on academic achievement as well as the effect of PBL on knowledge, critical thinking, problem-solving and clinical reasoning skills. Regarding academic achievement, Cisneros *et al.* evaluated the effect of PBL on students' post-test scores, final examination scores, grades and GPA, where the search revealed that higher post-test scores, grades and GPAs were achieved by PBL students as compared

to students taught through traditional lectures. In another study that evaluated a teaching approach that combined PBL with traditional lecturing, Mehvar (1999) reported that the grades of pharmacy students following this combined approach were significantly better than those of students of previous years taught through traditional lecturing. In terms of knowledge, critical thinking, problem-solving and clinical reasoning. Cisneros *et al.* (2002) reported that students on a pharmaceuticals course who applied PBL agreed that PBL left them with a large knowledge base which they were able to retrieve after finishing their courses. Students also commended the real-life reflection in PBL courses which enhanced their critical thinking and understanding of work environments.

From the students' point of view, students' views about PBL experiences have generally been reported as positive ones despite the fact that in some cases students reported that PBL can be a frustrating learning experience, especially in early years of its implementation (Stokes *et al.*, 1997; Woods, 1994). In the research conducted by Cisneros *et al.* (2002), students reported positive views about PBL courses and supported developing more such courses. Students were generally more motivated to study and take-part in the learning process, and most of them showed satisfaction with PBL and favoured it over traditional lecturing. Students' enthusiasm about PBL is generally related to the encouraging atmosphere of PBL, the interactive group communications and the clear objectives of the process; furthermore, PBL gives students the opportunity to relate concepts from different relevant disciplines, and practically apply what they have learned, which are expected ultimately to enhance students' motivation to learn, in addition to increasing the mutual respect among students and their facilitators (Ward and Lee, 2002).

In another computerised PBL approach developed by Abate *et al.* (2000), students reported that this approach was primarily successful in developing their problem-solving skills, resource skills, and communication skills. At the University of Arizona, a problem-based, student-centred curriculum change was introduced in 1995 to pharmacology and medicinal chemistry courses; students' knowledge and problem identification and solving skills were evaluated by testing them before and after implementing the changes, and the post-test results showed a marked progress in them. Survey results also showed that students reported favourable attitudes of enhanced confidence, self-learning skills, problem-solving skills and clinical reasoning skills. In another student-centred, case-based, integrated course approach implemented at the University of North Carolina, results showed that such an approach can develop students' critical analysis, problem-solving, decision-making and communication skills. In other cases, PBL was incorporated into curricula through mini cases that allow students to apply their scientific knowledge and clinical practice, results showed positive findings in students' preparation, motivation, active learning, problem-solving, implementation and achievement in exams (Lubawy and Brandt, 1998).

From this review of research into PBL, it becomes obvious that this approach has proved to be successful in developing a range of enterprise skills for students. Nevertheless, despite the positive findings of development of knowledge and skills through PBL, there is still a need for more in-depth investigations to evaluate the outcomes of this approach through longitudinal qualitative research to support that PBL does meet its long-term objectives.

3.2.4. THE ROLE OF MENTORS IN PBL

The role of mentors in the PBL process is to act as facilitators or moderators to facilitate and stimulate the learning process, which is considered as a shared responsibility between facilitators and their students (Ertmer and Simons, 2006). The skills and quality of facilitators are mentioned as a cornerstone for the success of PBL programmes (Schmidt and Moust, 2000). Facilitators or expert tutors are involved in the PBL process to help in directing the students' learning process (Cisneros *et al.*, 2002). Facilitators' roles in PBL require new innovations in instruction approaches, motivating building of knowledge, and supervising and assessing (Torp and Sage, 1998; Gordon *et al.*, 2001; Maxwell *et al.*, 2001). Facilitators also encourage students' thinking without imparting facts (Maudsley, 1999). Academics will provide expert consultancy to students to evoke their understanding of the knowledge and skills needed; this involves guiding students through each case to identify its key issues, supporting students' learning in each area appropriately, and managing groups' dynamics. Thus, facilitators help students to achieve the exit outcomes expected from PBL courses; they are not expected to disseminate information or to directly answer all students' questions but rather stimulate self-assessment questions in students' minds that help them find the answers and become skilled self-learners (Dolmans *et al.*, 2002). To achieve this several approaches can be applied in the learning process, for example, encouraging students in groups to share and brainstorm their ideas, allowing students to provide their feedback and reflections on presentations and findings, providing students with case studies that combine topics and themes from multiple disciplines and allowing them to solve them. Facilitators should also allow students time outside the class room to encourage them to seek external references and networks, and arrange periodic meetings with them to discuss their weekly

progress, as well as request them to document intellectual journeys where they keep notes of their observations, ideas, data, plans, strategies, hypotheses and progress. Additionally, facilitators could encourage students to take part in workshops and seminars, and coordinate external visits and practical trainings for them.

There are a lot of debates as to whether facilitators should be ‘subject experts’ or ‘non-subject experts’; for example if the learning trigger is Leukaemia, should the facilitator be someone who is a subject expert but has no experience in facilitation, or someone who is an expert in facilitation but not familiar with Leukaemia. A subject expert might demonstrate weak facilitation skills since they are more likely to interrupt the learning process and go back to lecturing; they also might not view facilitation of a PBL session as a requirement for ‘*reskilling*’ but more as ‘*deskilling*’ for their roles as lecturers (Shaw *et al.*, 2006). Non-subject experts on the other hand will not be able to assess whether problem resolving is moving in the right direction. Davies and Harden (1999) argued that subject experts who are familiar with the course and curricula and who have appropriate group facilitation skills are likely to be better facilitators than non-subject experts. However, others like Vernon (1995) viewed that facilitators with experience in group dynamics and motivation are more valuable than subject experts. In the medical field, this idea of non-subject experts being potentially more valuable than subject experts has been quite difficult to comprehend by many medical teachers. In all cases, several researchers (e.g. Barrows, 1988; Engel, 1991; Estrada Duek, 2000; Evensen and Hmelo, 2000; Savin-Baden and Major, 2004) agreed that in order for PBL to give its intended outcomes, the roles and responsibilities should be clear for each group member involved in the teaching and learning process; this is important since the process might involve different but interrelated roles that complement each other.

With regard to combining practical experience with theory in the pharmacy education context, Shaw *et al.* (2006) argued an optimum model for delivering an MSc course in clinical pharmacy by using pharmacists who combine teaching experience in the field of academia as well as practical experience as clinical practitioners; these are referred to as *teacher-practitioners*. Despite the fact that teacher-practitioners may not often have the expert knowledge that students wish them to provide, students would still value the expertise, and such an approach would make students realise even more that they will have to learn for themselves to seek answers that will not be simply provided to them ready-made (Davies and Harden, 1999), thus, encouraging them to adopt an active learning approach. Teacher-practitioners have been utilised by several universities in the UK such as the University of Derby, for example, and have been shown to create a balance between the practical and academic experience due to their understanding of academic practice alongside their experience and knowledge in clinical practice (Shaw *et al.*, 2006).

Major differences between teachers and teacher-practitioners fall under five main aspects including areas of experience, contribution to the PBL process, development of the trigger, facilitation and assessment as described by Shaw *et al.* (2006). These differences are described in Table 3.1. The table shows that the practical experience of teacher-practitioners helps them in providing more input into the content of the learning material since they are more aware of the current practice and more experienced in certain fields of practice than teachers. Nevertheless, teachers are described as more aware of the design of learning materials, which makes them more capable of relating to students' learning outcomes due to their better understanding of what needs to be met. Still, when it comes to providing students with triggers, teacher-practitioners are better in providing problems that are relevant to the current

practice, which makes learning with them more adjusted to the real-world and generally more interactive and student-centred as opposed to teachers' methods which tend to be more didactic. In assessment, despite that teachers are more aware of assessment principles and their application, teacher-practitioners are more focused on testing students' knowledge while they work on developing other generic skills in students whilst working on the various real-life problems.

Table 3.1: Differences between teachers and teacher-practitioners:

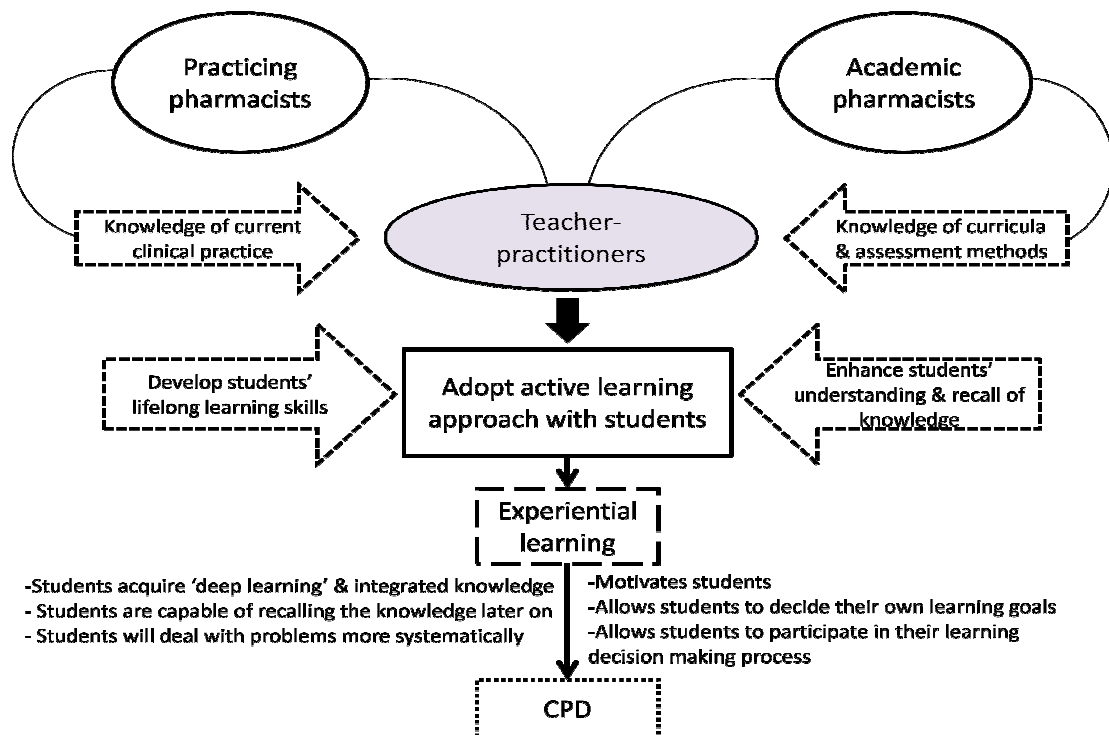
	Teacher	Teacher-practitioner
Areas of experience	More aware of the design of learning materials, and the curricula's learning objectives.	More aware of the current practice
Contribution to the PBL process	Can relate curricula to student's interests and use them to improve their learning outcomes	Can provide input into the content of the learning material
Development of the trigger	Will totally understand the curriculum's learning objectives and what needs to be met, but are not capable of creating the suitable trigger since they are not aware of the current practices that are needed to achieve this.	Will understand the general learning outcomes and accordingly develop a suitable trigger that would help students understand the realities of current practice. Thus, ensuring that the learning is relevant to the curricula and at the same time adjusted to real-world practices
Facilitation	Usually trained in a traditional didactic way, thus, might be hesitant about facilitating a PBL session for a subject that they're not experts in.	Can balance their facilitation skills with their knowledge of current practice, even though they may not demonstrate the expert knowledge that students might expect them to have.
Assessment	Aware of the assessment principles and how these affect the learning process	Concentrate more on testing student's knowledge, while PBL develops other transferable skills as ' <i>reasoning, fostering of an independent enquiry, problem solving, team or group working, critical analysis, evaluation of literature and communication</i> '

Adapted from Shaw *et al.* (2006).

Figure 3.1 shows how involving teacher-practitioners can support the application of PBL in the context of pharmacy education. As illustrated in the figure, the experience of practicing pharmacists and their exposure to current practices can help them provide input into the content of the learning material. On the other hand, the

academic experience of teacher-pharmacists makes them more aware of the design of learning materials, and how it can be related to students' interests and used to improve their learning outcomes. Accordingly, when practicing pharmacists are offered the opportunity to teach, the result would be teacher-practitioners who are capable of offering students the opportunity of a more interactive and motivating learning experience that helps them integrate their knowledge, become better problem solvers, and develop their life-long learning skills. This is achieved by correlating academic and practical aspects of the group's learning process and assessment, which has been mentioned to trigger and facilitate the learning process of students (Shaw *et al.*, 2006). Furthermore, the figure shows that teacher-practitioner could help students develop a range of skills by introducing them to real-life problems through experiential learning, which is expected to help them follow up on their mandatory CPD requirements later on in their lives.

Figure 3.1.: Supporting the development of students' enterprise skills through implementation of PBL by teacher-practitioners in the pharmacy education context



Developed from Shaw *et al.* (2006).

3.2.5. *BARRIERS AND CHALLENGES TO PBL*

Even though major developments and successes in the implementation of PBL were reported, especially following the efforts by McMaster, Maastricht and Newcastle universities, PBL was not applied by all medical schools worldwide due to the complex changes and uncertainties involved in its implementation process that can trigger anxiety for academics, as well as students and administration. Such changes involve various factors that vary among organisational factors and personal factors related to academics and students, which could affect or impede the implementation of PBL.

The complex changes involved in implementing a new learning approach were discussed by several authors who all emphasised the complexity and difficulty of managing these changes, and looked into issues and factors that should be considered when changes in teaching and learning are to be introduced (e.g. Fullan, 2001; Morgan and Roberts, 2002; Henriksen *et al.*, 2004; Kolmos *et al.*, 2004; Graaff and Mierson, 2005; Graaff and Kolmos, 2007). To succeed in bringing down the traditional education barriers and implementing PBL, the institution and academics have to understand the different influencing factors and adapt the new teaching and learning approaches accordingly.

Implementation of PBL requires several innovative curricular changes and departmental changes that may not be welcomed by supporters of traditional teaching methods which see the teacher as the main and possibly only player. PBL is an interactive learning process that involves active student involvement in the learning process. It involves a high level of coordination between different departments at the school on the one hand and between academics and students on the other. Such

collaboration is essential to enable students to relate their knowledge and build their conceptual maps, so that the knowledge they gain about different subjects is not compartmentalised separately, but rather related and complete (Hytti and O'Gorman, 2004). Such changes have placed higher demands on academics who had to shift away from traditional teaching methods, and on students who had to take part in the learning process and invest more of their time and effort in doing so, making PBL – at many instances – an uncomfortable experience when first introduced to students accustomed to didactic approaches (Novak *et al.*, 2006). Albanese (2000) agreed to this and mentioned that transforming the role of students from a passive to an active one in PBL is expected to place more efforts on students, and, thus, PBL should be associated with a degree of maturity and awareness about this learning by students, which could be enhanced through familiarising students with the philosophy and the process of this learning.

Several models have been suggested for implementation of PBL; most of these models are affected by organisational factors and strategies applied in teaching and learning. The extent to which PBL can be incorporated into a curriculum relies heavily on the extent of financial and human resource support from the institution considering that assigning one academic to supervise one relatively small group of students can place considerable financial pressure on the institution. Additionally, supporting schools with enough resources including textbooks, journals, on-line databases, labs, study rooms, personnel time and others can place further financial implications. Therefore, organisational factors can affect in many cases impede PBL implementation across the curricula (Survey of Entrepreneurship in HEIs in Europe, 2008; Frankel, 2009).

From another aspect, the learning outcomes and the teaching and assessment approaches followed when applying PBL can have several implications. Introducing changes into internal organisational strategies and into already set curricula, if PBL is to be adopted, will require interventions of experienced academics and practitioners to consider issues related to disciplinary, ethical, legal, political and ideological aspects of the context; but academics cannot be expected to apply innovative learning approaches when they themselves have not experienced them (Novak, 1990; Albion and Gibson, 2000). Thus, the institution's communication environment, which includes interactions with students as well as the institutional climate and its governing regulations and processes, can play a major role in determining the success of PBL implementation.

Other factors that may form barriers to implementing PBL include time constraints and the readiness of the institution and its academics and students for change (Survey of Entrepreneurship in HEIs in Europe, 2008). Generally, there is a lack in PBL instructional materials as well as training materials (Gallagher *et al.*, 1995; Burruss, 1999). Furthermore, many academics do not have enough time or motivation to prepare such training materials (Ward and Lee, 2002), which are affected by various social, cultural, psychological, and physical aspects of students and academics. PBL can require significant time starting from its planning; here the timing of courses and modules requires careful organisation to consider their dependence on each other and on other departments. The readiness of the institution and its academics and students is another issue that places more constraints here since the teaching and learning philosophies adopted by academics individually, or by the institution as a whole, should be considered. Savin-Baden and Major (2004) mentioned that different opinions are held in this aspect; some believe that implementing PBL should be a

gradual process over several years, while others believe that it should be preceded by traditional teaching about the basic concepts of knowledge in order for students to comprehend it. In other cases, personal opinions of academics might not favour implementation of PBL due to availability of research not supporting its implementation, or simply because those academics might feel threatened or exposed by implementing this approach, thus, preventing organisation-wide implementation of PBL as a strategy across all curricula (Savin-Baden and Major, 2004). However, it is important in all cases to explain what PBL is and support schools with the necessary constituents that can help in reducing these constraints, along with providing faculty trainings and student orientations.

3.2.6. *APPLYING PBL IN HEIs*

PBL has been suggested as a general pedagogical approach or philosophy rather than a teaching approach (Walton and Mathews, 1989). There is no single unanimous approach suggested for delivering PBL, and there are several arguments about what constitutes this learning. Yet, there is an increasing shift toward studying PBL, and its implementation, assessment and significance in developing students' skills (Savin-Baden and Major, 2004).

The approaches utilised for applying PBL in order to satisfy different discipline objectives can be endless (Barrows, 1988). Savin-Baden (2003) described PBL as a flexible and diverse approach that can be implemented in different ways among different courses and disciplines in different contexts. Therefore, different staff and students may look at it differently at various times, except that it would always be centred around a problem. This has led to the conflict that PBL can refer to different meanings and approaches at different institutions, and in many cases there are lots of

arguments as to what PBL is and how exactly it is implemented (Hmelo and Lin, 2000).

In their research of the characteristics of PBL, Barrows (1988) and Boud and Feletti (1997) both argued that PBL should not be perceived as a specific way of learning. Barrows (1986) viewed PBL '*a genus for which there are many species and subspecies*' (p.485), and argued that a wide variety of educational methods can be developed through different educational approaches in PBL. Barrows added that deciding the PBL approach to be followed should be done only after careful consideration and evaluation of the type of problem used, the sequence of teaching and learning, the students' involvement in the learning process, as well as the objectives and the assessment methods applied. Boud (1985) argued that PBL differs according to the context in which it is applied by summarising eight characteristics of PBL; these characteristics included recognition of practical experience by students, stressing the need for students to take responsibility of their own learning, utilising an interdisciplinary approach, focusing on the learning process rather than knowledge acquisition, involving tutors as facilitators rather than instructors, shifting emphasis toward self and peer assessments rather than tutor assessment, and an increasing focus on effective communication skills. Therefore, any tutor who wishes to employ PBL should first consider all factors relevant to the delivery of the course and factors related to the context in which it is applied, and then decide on the best approach for applying PBL while at the same time considering the eight factors for delivery of PBL suggested by Boud (1985).

The interdisciplinary approach emphasised by Boud (1985) has received significant attention in recent research. Interdisciplinary teaching, also referred to as integrated teaching, begins with a specific topic or situation that requires collaborative student

efforts and knowledge of several disciplines to reach a solution (Meier *et al.*, 1996; Dabbagh *et al.*, 2000; Sage, 2000; Gordon *et al.*, 2001). Segmented teaching on the other hand provides compartmental knowledge that develops organised facts and theories which are important to build more advanced research and understanding (Tchudi and Lafer, 1996); this teaching, however, does not support the development of skills that interdisciplinary learning provides for. Interdisciplinary learning helps in developing students' critical thinking and problem-solving skills by developing their perception about how disciplines interact, and encouraging them to seek solutions to various problems while developing their creativity (Ward and Lee, 2002). This matches the interest of this research which focuses on having graduates who can relate knowledge and who have the vision to see beyond their own discipline and be able to talk to others. These skills cannot be developed through disciplinary approaches since a single discipline could never provide all facts (Ward and Lee, 2002). Students should learn processes of how to acquire relevant knowledge, and develop an understanding of how the knowledge from different disciplines relate and interact. Once they are able to do that it should be easy for them to handle relevant real-life problems.

In the context of medicine education in HE, one of the most common approaches to applying PBL is the Maastricht seven-jump model which constitutes of seven steps that have been clearly illustrated by several authors as and Schmidt Moust (2000) and Wood (2003). The process starts by handing a problem to a group of students to discuss, identify and clarify issues related to the problem in order to gain an understanding of the basic underlying principles of the scenario. This is basically done by extracting information from the problem, after which students will be ready to define and discuss their initial opinions about the problem or problems that they

agree on. In a brainstorming session, students will have to arrange the information they learned earlier, relate it to the problem, suggest explanations and point out the gaps in their knowledge, which is all done under their mentor's supervision (Wee and Kek, 2002). Students then suggest tentative solutions and generate hypotheses before moving on to setting their learning goals, after which they move on to the stage of engaging in independent study, where they gather information relevant to the goals that they have set. To seek a solution, several sources might be available for students, and in some cases multiple solutions as well (Novak *et al.*, 2006). This should lead to the final stage of the seven-jump model which is the follow-up stage. In this stage students share what they learned and apply this new knowledge to the problem, which allows them to come up with multiple perspectives and re-construct the problem in their minds through consideration of the new knowledge they have gained (Schmidt, 1993).

Such a learning approach helps students in medical contexts realise that certain medical problems can be completely resolved and others may exist and require further investigations; in such settings critical thinking is encouraged and arguments arise (Shaw *et al.*, 2006). The follow up stage should include an evaluation of the relevancy of information sought and the effectiveness of the resources used, based on which students will re-evaluate their hypotheses and decide whether new information is needed. The last stage is considered essential for developing the self-learning skills of students (Evensen and Hmelo, 2000).

A more recent model for applying PBL was suggested by Mills (2008), which is the five-stage model. The process starts here by students 'defining' the problem in hand. Students then 'brainstorm' the possible research problems available and their explanations or interpretations about them. This is followed by setting the 'research

aims', which includes formulating hypotheses, deciding the knowledge gaps, and deciding the process through which the groups will work together to solve the problem. The group will then start their 'research' through private studying, and then move to the final stage of 'synthesis' where they review and evaluate the information gathered, reflect on their learning process and decide on their response to the problem.

3.2.7. ASSESSMENT OF *PBL*

PBL is widely applied in various contexts. However, when it comes to assessment approaches which ensure that the course objectives and learning outcomes are met, the assessments are still often out of alignment (McDonald and Savin-Baden, 2004). This is important since introducing experiential learning into the curricula through implementation of PBL, for example, will require introducing suitable assessment methods as well since resolving ill-structured problems in PBL cannot be done in a pre-determined specific way, neither could the skills developed through this learning be evaluated through knowledge-based assessment methods. However, in reality most of the available assessment methods are knowledge-based (Dolomans *et al.*, 2001), like Multiple Choice Questions (MCQs), for example, which are the preferred approach for standardised testing; MCQs are very effective for evaluating large amounts of various content aspects, but are however criticised for only evaluating 'recall of isolated facts', and, thus, cannot be modified to measure the process skills developed through PBL (Ward and Lee, 2002). Therefore, assessment of PBL has been widely debated in academic literature (Boud, 1990; Gibbs, 1992; Estrada Duek, 2000; Savin-Baden, 2004). The following review comments on various debates regarding assessments including the application of summative and formative assessments in PBL.

For proper assessment of PBL, the traditional knowledge-based assessment methods should be replaced by process-oriented ones, where students could focus on doing their best rather than attempting to guess what lecturers want (McDonald and Savin-Baden, 2004; Tchudi and Lafer, 1996). Gordon *et al.* (2001) and Maxwell *et al.* (2001) agreed that assessment methods in PBL should focus on students' abilities to locate the required knowledge and resources necessary for solving problems, and not their ability to memorise facts. Biggs (1999) also stressed that successful student-centred deep learning cannot be achieved without holistic assessment approaches that encourage group and self-assessment. Biggs (2003) also supported applying such assessments in learning approaches designed to mimic real-life situations, he commented that *'the essential feature of a teaching system designed to emulate professional practice is that the crucial assessments should be performance-based, holistic, allowing plenty of scope for students to input their own decisions and solutions'* (p.237).

In their briefing about assessment in PBL; McDonald and Savin-Baden (2004) agreed with these perspectives and mentioned that PBL process should embed the feature of requiring students to list what they know and can do, and accordingly identify gaps in their knowledge and abilities, which encourages them to be more frank and receptive. They both agreed that this can be used as part of summative assessments where students can be rewarded for being able to point-out their learning requirements and reflecting on them without considering that as a weakness, indicating that this should be useful in assessing students who do not feel like putting any effort into work unless it is graded. By this, McDonald and Savin-Baden (2004) provided an optimum solution between those opposing summative assessment such as Knight (2001), who saw it as an escape for students who want to cover what they do not know, and cannot

do, with what they know and can do, and those opposing formative assessments such as Estrada Duek (2000) who argued that formative assessment of group activities can be seen as an opportunity for some students to perform for tutors, not in an attempt to solve problems but to try to show how much self-study they have done.

It is important to consider the previously discussed points of view about assessments in order for students to embrace and accept the PBL process. In a study by Heywood (2000) he found that students criticised courses that applied PBL and then used examinations that evaluate recall of information for assessment. This matter was also discussed by some authors such as Biggs (1999) who agreed that practice cannot be brought into examinations, and argued that assessment methods can sometimes inhibit creativity and group dynamics which are essential in PBL. Yet, a lot of research argues that examinations can be designed to be problem-based, where assessments can be applied to motivate students by allowing them to be more objective-oriented and focused (Segers and Dochy, 2001; Epstein and Hundert, 2002; Alinier, 2003).

Different arguments and debates about assessments reinforced discussions such as those raised by Boud and Fletti (1991) that PBL has developed more into a phenomenon rather than a fixed design; they both agreed that PBL is hard to be assessed and analysed in a quick manner since valid measurable outcomes of it are hard to interpret. Other authors (e.g. O'Neill *et al.*, 2002; Mclean *et al.*, 2003; Chamberlain, 2005) also argued that many of the assessment methods applied in PBL are unfamiliar, difficult to measure or quantify and require more time and effort than other commonly applied methods. Besides adding more challenges to the PBL assessment process, these debates also supported the fact that there are several approaches for assessment that can follow general guidelines rather than a single pre-

determined approach, where the application of any of the methods requires a clear understanding of the method as well as the knowledge and skills it monitors.

McDonald and Savin-Baden (2004) suggested several assessment forms that can be utilised in PBL and EBL. For example, there are *group presentations* where students present a collaborative piece of work orally or in a written format; group presentations link well with PBL but judgments about content, process and presentation of the work make it difficult to grade. *Individual presentations* on the other hand require students to present how they have contributed to the group's work in solving the problem; individual reports might not be very indicative per se and can be time consuming. *Tripartite assessments* were also suggested, these incorporate an evaluation of the group reports as well as the individual reports describing individual inputs, in addition to an individual account of the group process and dynamics. Tripartite assessments are perceived by students as fair since they differentiate students who do more work from others who do less (McDonald and Savin-Baden, 2004). Students could also be required to write an essay in response to a case scenario that is presented to them in *case-based individual essay* assessments; these assessments match with PBL but depend a lot on cognitive abilities. Case-based assessments can also be *care-plan based* in clinical practice/ client-led projects, where students present a solution to manage a real-life problem that is presented to them; this assessment is very effective but not preferred a lot since the reference criteria can be hard to set.

Portfolios are another form of assessments applied in PBL. These are sometimes referred to as *intellectual journeys* (Stepien *et al.*, 1993; Gallagher *et al.*, 1995; Tchudi and Lafer, 1996). Portfolios can be useful when designed properly based on clear evaluation criteria; otherwise they can lack any objectives and be difficult to

mark (McDonald and Savin-Baden, 2004). When writing portfolios, students develop their own self-assessment through documenting remarks, in-process notes, in addition to reports and studies they have read. Students also write their own arguments or discussions about how their ideas and conclusions were formulated. This should help students organise their ideas, decide in which direction they will move, evaluate their progress, and spot any available opportunities (Ward and Lee, 2002). Students do this by documenting what they know and what knowledge they need to add to that, students will also come up with an hypothesis about what they think the situation will be, and develop a framework to reach the answer (Stepien and Gallagher, 1993; Gallagher *et al.*, 1995). Reflective journals could also be applied *online* where the evaluation criteria can be set clearly; the students would submit their portfolios regularly and have them marked at the end of the course; online portfolios were found to encourage students to be frank and open about their learning (Walti, 2008). Students could also apply *conceptual maps* in their portfolios which helps in following up on students' conceptual changes as well as errors in their learning (Novak, 1990); these maps meet many of the needs of PBL in terms of being able to relate concepts and integrate them with various aspects, and also serve as a tool for resolving ill-structured problems for PBL (Ward and Lee, 2002).

McDonald and Savin-Baden (2004) also described other forms of assessment such as the *triple jump* which is specifically designed for PBL; it involves the three phases of *hop*, *step* and *jump*, which start with triggering students' thoughts with questions asked by tutors, then students are given time to research the information needed, and finally submit a written report about their findings (Powles *et al.*, 1981; Painvin *et al.*, 1979). *Peer-assessments* and *self-assessments* also go well with PBL. Peer-assessments stress collaboration in PBL and encourage the use of various assessment

approaches as rubrics for example. Peer assessments allow students to assess and be assessed in classes so that they would become more capable of providing and receiving feedback, and of understanding what their own learning needs are, which are all important for developing skills as self-directed learning, clinical reasoning, working in teams, communication and critical thinking (Nendaz and Tekian, 1999). Walker (2001) and Cassidy (2006) reported that peer-assessment can support the development of a range of skills that are necessary for employment, and added that students reflected positive views about peer assessments despite being uncomfortable with the responsibility of assessing their peers at some times. Self-assessments on the other hand give students the opportunity to critically think about and evaluate what they know and do not know, in addition to allowing them the opportunity to think about what they need in order to fill their knowledge gaps. *Role plays* can also be utilised in assessments and students can also be videotaped while handling cases; students could then submit *reports* and reflect on their skills as well as on their scientific knowledge, where these reports are assessed and discussed with their mentors (Kaufman *et al.*, 1982; West *et al.*, 1985; Kaufman *et al.*, 1989). Reports are seen to develop students' written communication skills, especially in the case of comprehensive reports requested usually from students in the final year.

Another effective form of assessment that is used in practice is the *viva voce examinations*; however, these can put students under considerable stress in addition to their time and financial costs (McDonald and Savin-Baden, 2004). Assessments could also be provided by *facilitators/tutors* but these assessments raise a lot of debates since they increase students' reliance on facilitators and hold them back from becoming independent learners, which might also affect group dynamics as well; therefore, anonymous assessments by someone other than the facilitator are more

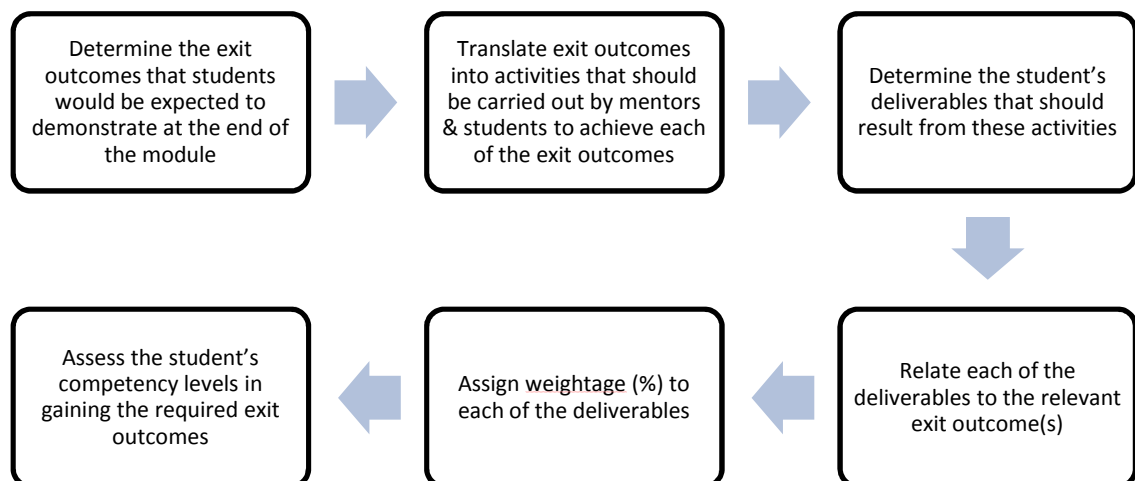
recommended (McDonald and Savin-Baden, 2004). Finally, the *patchwork text* assessments are also seen to go well with PBL since they can be used to encourage students' critical and self questioning skills by allowing them to submit a piece of work in a written format; students develop their work over a period of time and share it with other students, where their work will include various written styles such as comments on lectures, personal inputs, and book reviews (Winter *et al.*, 1999).

The previous paragraphs described several assessment forms applied in PBL. However, whichever approach applied, it is important to bear in mind that PBL aims to develop students' abilities to act in a professional context and recognise their own learning needs, therefore, assessment approaches need to apply mechanisms that assess students' skills in conjunction with their discipline knowledge. Furthermore, in any of these assessment methods, the final assessment will significantly depend on the mentors' understanding of PBL and how they carried out the process of understanding each student's knowledge and competency levels (Chamberlin and Moon, 2005). Accordingly, it is important for the assessment to be chosen and applied based on clear understanding of the learning objectives and properties of each assessment method (Barrows and Tamblyn, 1980). McDonald and Savin-Baden (2004) recommend applying a continuous integrated assessment approach throughout PBL courses; such an approach offers students the opportunity to work in teams, relate their knowledge, comment on their learning goals, and engage in the assessment process through feedback and peer and self-assessments. To achieve this, the goals of each PBL course must be clearly set and discussed with students in advance in order to assess properly the results (Evensen and Hmelo, 2000; Estrada Duek, 2000; Savin-Baden and Major, 2004), where such goals can be translated into tangible deliverables that can be assessed, like worksheets, for example, or concept maps and personal

reflections (Wee, 2004). To make assessments clearer, students and mentors might set performance indicators in matrices that describe the roles of mentors in the process and the deliverables expected from students with corresponding scores; this way the roles of mentors will be clearly identified and students will be aware of the attributes and criteria upon which their assessments will be based (Guirdham and Tyler, 1992). These assessments are referred to as ‘*criterion-reference assessments*’ and are expected to help students in developing their own self-evaluation and assessment (Guirdham and Tyler, 1992). For example; to gain the skill of self-learning and locating necessary information, students are required to refer to relevant references and submit a list of these references as part of their assessment, where these lists can be evaluated by their mentors for their relevancy, quality and validity (Wee, 2004).

The following Figure 3.2 illustrates the PBL assessment process as described by Wee (2004).

Figure 3.2.: The PBL assessment of learning process



Developed from Wee (2004).

According to Figure 3.2, the assessment process starts by clearly determining the exit outcomes of the PBL course and translating them into exit outcomes that define the roles of mentors as well as the roles of students in the learning process. Following that, the exit outcomes should be translated into tangible deliverables where each of these deliverables would relate to one or more the of exit outcomes. Finally, each of the deliverables should be assigned a weightage, and accordingly each student's competency levels could be assessed.

3.2.8. TAXONOMY OF PBL

Several models for applying PBL were suggested by Savin-Baden which emphasise the degree of variety in PBL that was discussed in Sub-Section 3.2.6. Savin-Baden (2000) made an attempt to differentiate between different modes of PBL. She suggested five modes that focused on the learning outcomes of PBL. These modes ranged from narrow discipline objectives to larger objectives that covered integrated knowledge that is applied in solving more complicated problems. Accordingly, the problems proposed in PBL varied in complexity according to the expected learning outcomes from simple problems of clear correct answers to more messy and open-ended ones. In a more recent book about approaches to PBL by Savin-Baden and Major (2004), the authors proposed a more comprehensive conceptualisation of eight modes of PBL which are discussed next.

The first mode is the '*single module approach*'. Here, PBL is applied in one, sometimes two, modules in the third year of a programme. Usually it is applied for the objective of developing students' critical thinking skills, where students commonly engage in solving one problem over two or three classes.

The second mode is the '*PBL on a shoestring*', which is usually applied by academics who have a personal interest in PBL and not others. This results in having PBL applied in many modules but without the presence of a sense in its implementation in particular areas, especially that problems are limited to a single discipline in each case. Students will not develop the ability to integrate their knowledge and academics could get soon frustrated.

As its name implies, the '*funnel mode*' is based on 'funnelling' students starting from a familiar traditional teaching approach in the first year and gradually moving on to reach PBL in the final year, where students will be expected to engage with more complex integrated problems.

The '*foundational approach*' is the fourth mode. This mode regards certain knowledge and concepts to be foundational. Thus, first year students are provided with tutorials, lectures and laboratories to acquire the essential information before moving on to solving problems and engaging in PBL in subsequent years. The basic assumption behind this mode is that students will not initially have any content knowledge or understanding of how practitioners handle situations in the real-world, and since students cannot basically apply what they do not know, this mode will start with a more traditional approach to establish basic knowledge and understanding and gradually move to a more complex approach that involves application of PBL.

The '*two-strand approach*' sees PBL as an essential component for delivering a curriculum; this mode was initially designed to combine the benefits of PBL and other learning approaches simultaneously. Here, PBL cannot be adopted alone across the whole curriculum because the programme combines disciplines from a different

programme. However, the different modules are seen to have common objectives that are supported by applying PBL besides other approaches.

The sixth mode described is the '*patchwork PBL*'; a complex mode that is perceived as difficult and confusing for students. In this mode PBL is incorporated into the whole curriculum, but the modules run concurrently rather than sequentially due to institutional requirements. So, students engage in solving two or three unrelated problems from different modules at the same time and, therefore, cannot see the relevance or the need for PBL since they end up gaining compartmentalised knowledge which they cannot integrate.

The '*integrated approach*' is based on the suggestion that PBL is not just a learning strategy but rather a learning philosophy. The curriculum is designed to include sequential problems that are related to both each other and other disciplines, thus, providing an integrated inter-disciplinary approach to learning. This mode supports developing students' understanding of PBL as well as their team skills. This mode was adopted by some universities like The Illinois State University (Meier *et al.*, 1996), where their students came to understand that problem solving does not always move in a specific direction, but instead sometimes problems may arise during the solving process, which might necessitate backing up or starting over again. Accordingly, students develop a thinking framework that is expected to help them in solving future problems and establishing relationships between different disciplines at the same time.

The final PBL mode outlined is the '*complexity model*'. This is based on Barnett and Coate's (2002) assumption that curricula should be seen to build identities in three main aspects; 'knowledge, self and action', where knowledge is that specific to the

discipline, action is the skills acquired by doing, and self is the building of a professional identity that fits the discipline studied. This mode helps students to understand and set expectations of the actual professional practice, and accordingly build up their own views that reflect their professional identity.

This discussion clarifies how different modes can be used to apply PBL. Even though the modes share some of the characteristics, there are significant differences in how they are applied. This variation reflects the flexibility of PBL in accommodating many of the barriers and challenges at institutional and staff levels, despite that in many cases they are seen as a limitation when evaluating the significance of PBL as a whole. However, new and varying modes of PBL continue to evolve reflecting a growing interest in the specific discipline-based approaches that affect curriculum design (Savin-Baden, 2007).

3.3. ENQUIRY-BASED LEARNING (EBL)

EBL is very much similar to PBL (Price, 2003; Savin-Baden, 2007). As in PBL, EBL is also foundational in the philosophy of John Dewey (1944), who contended that the learning process is initiated with inquisitiveness of the learner. EBL emerged as a form of PBL in human sciences and social care, since the word ‘problem’ was perceived with negativity in these areas (Savin-Baden, 2007). Barrows (1985) and Feletti (1993) agreed that the underlying processes relevant to learning in healthcare are common to both PBL and EBL. In both learning approaches the underlying processes involve investigating fuzzy problems that helps students apply theory in practice and accordingly be better prepared for handling similar situations in the future; students are required to determine their learning needs and point out and agree on areas that need further addressing, solving and improving. Tutors in EBL act as facilitators that monitor the learning process of groups, and as in PBL do not

provide knowledge related to the problem in hand but rather encourage reasoning and brainstorming activities of the group (Savin-Baden, 2007). Both PBL and EBL also require learners to identify gaps in their knowledge, access relevant and appropriate resources, submit evidence that reflects the level of their learning, and evaluate and reflect on their learning process to agree on what skills and knowledge have been gained, and what needs further investigation and development (Long *et al.*, 1999). Thus, both PBL and EBL are mentioned to support the development of a range of students' transferable skills as negotiation, leadership, problem-solving and decision-making through engaging in active learning processes (Justice *et al.*, 2009).

The word 'Enquiry' in EBL is sometimes written as 'Inquiry' which are pretty much the same. Savin-Baden (2007) mentioned that both terms are equally used; however 'inquiry' usually refers to conducting some sort of research, while 'enquiry' usually refers to a wider concept of trying and exploring. EBL is increasingly applied in different health-related disciplines in different countries and is gaining more acceptance and support in these disciplines in the UK (Conway *et al.*, 1999). Yet, there is a need for more research investigating the outcomes of this type of learning and its value in specific disciplines.

Whilst utilising unstructured problems in both PBL and EBL learning approaches, some universities apply EBL as a wider learning philosophy than PBL, such as the University of Manchester in the UK. As pointed out in the Higher Education Academy (HEA) Guide to Curriculum Design, EBL in those universities is seen as a learning approach that offers students more ways of thinking by utilising a wider range of problems that include small-scale research and project work, which makes students more flexible in exploring and comprehending real-life in ways that provide flexible rather than rigid solutions (Kahn and

O'Rourke, 2004). Nevertheless, Savin-Baden (2007) contends that whether applying PBL or EBL, there are clear similarities in the learning process between both in all cases.

3.4. CASE-BASED LEARNING (CBL)

CBL was introduced to enhance students' learning by helping them integrate their previous knowledge through cases that reflect real-life situations. CBL is similar to PBL in many ways (Savery, 2006), and is applied across a wide range of disciplines including medicine, pharmacy, nursing and dentistry (Richards and Inglehart, 2006). As in PBL, CBL is also a student-centred learning approach that motivates a higher level of thinking and analysis. CBL requires students to resolve ill-structured problems in a process that is expected to help students be better prepared for handling similar real-life situations (Chi-Wan and Lopez-Nerney, 2005). Students in CBL also work in groups under the supervision of a tutor, who is expected to help in developing a range of their skills including critical thinking in assessing the information provided and identifying logic flaws or false assumptions, as well as problem-solving, team skills and others, while at the same time develop the students' discipline-specific knowledge (Chi-Wan and Lopez-Nerney, 2005).

However, CBL differs from PBL mainly in the role of facilitators in the learning process. In a comparison between PBL and CBL conducted by Srinivasan *et al.* (2007), the authors reported that facilitators in CBL can respond to students' questions during their handling of problems by providing them with questions that direct them and ensure they stay focused on their learning objectives. Furthermore, CBL offers students a chance to prepare in advance, and, thus, students will have knowledge about the area of investigation before the session. Accordingly, CBL is sometimes referred to as '*a guided inquiry approach*', and has been criticised for possibly reducing the role of students in determining their learning outcomes, especially that in real-life contexts it is important to be able to define the faced problems and

resolve them through a process which includes setting goals and outcomes. CBL was also criticised since it could encourage spoon feeding, especially that tutors might be tempted to lecture students when correcting their false assumptions. Yet, a recent study by Sodhi-Berry and Iredell (2010) demonstrated that students' perceptions about CBL were positive ones in which they reported that they were able to develop the same outcomes from a CBL course as those from a PBL course, including development of autonomy and self-learning skills which are among the unique skills developed through PBL. Consequently, CBL is advocated for being a simpler less time-consuming approach that provides students with content knowledge and a range of skills despite its more structured approach (McNaught *et al.*, 2005; Tarnvik, 2007).

3.5. CONCLUSION

This chapter provided an elucidation on the theoretical conceptions about the main experiential learning approaches applied in pharmacy education including PBL, EBL and CBL. The chapter focused on PBL and explored its definitions, objectives and outcomes, barriers, the role of mentors in providing it, as well as its application and assessment methods, and modes of delivery. Following that, the chapter concluded with a discussion about EBL and CBL with an emphasis on their similarities and minor differences with PBL.

More specifically, This chapter discussed the gaps that face HEIs when implementing experiential learning approaches, and also emphasised the importance of attending to the qualifications of academics so that they could engage in interactive learning experiences in such ways that lead to the development of students' skills besides their knowledge. In this regard, the value of involving teacher-practitioners in the educational process was also discussed as they could enhance the value of the learning process through exposing students to current real-life situations, and, thus, help them relate their knowledge to practice whilst they

develop a range of skills. Furthermore, the chapter highlighted the importance of setting proper assessment methods that address the intended learning outcomes of experiential learning. Such issues were found to be of high importance and relevance to this research, and will be referred to later on in the Discussion Chapter at the end of this thesis.

CHAPTER FOUR:

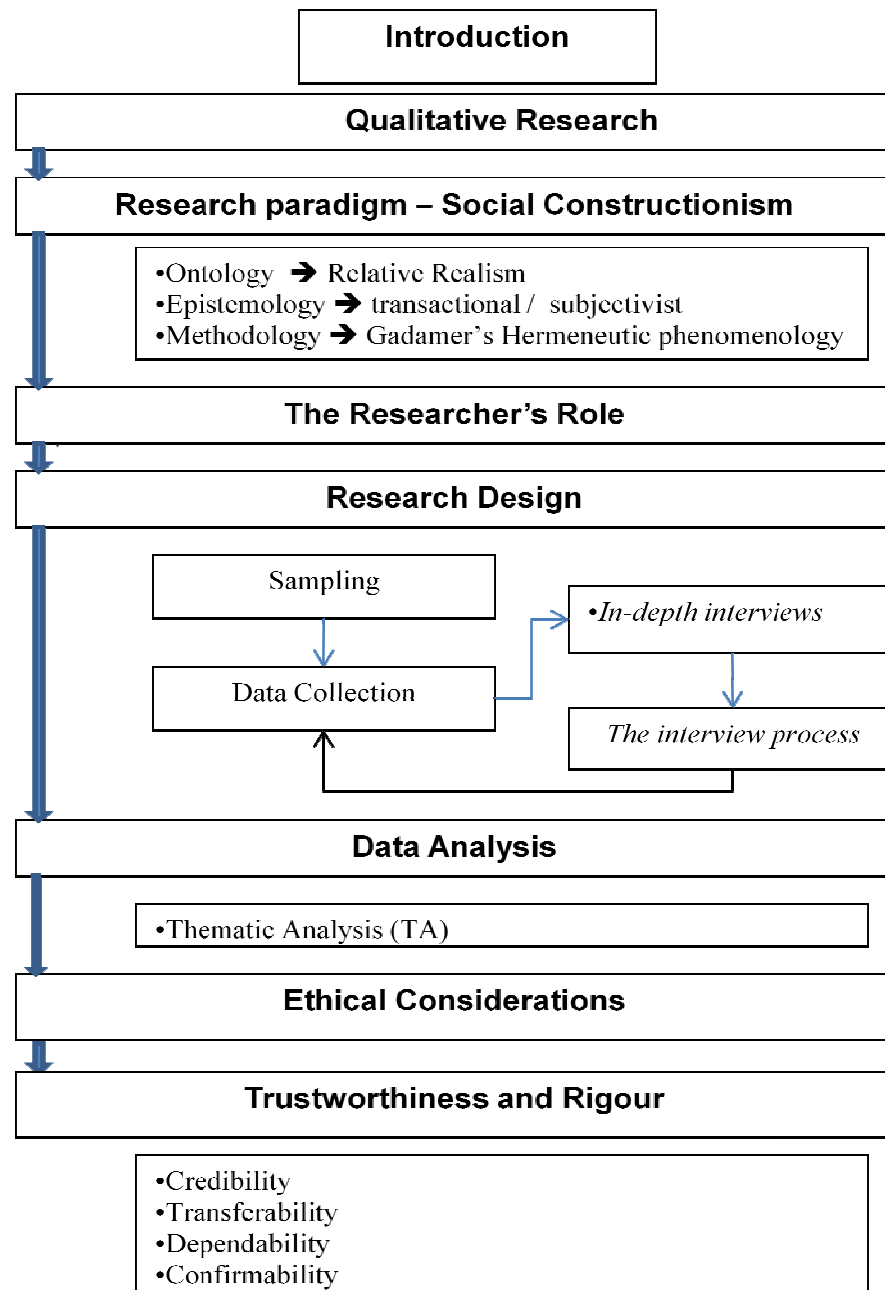
METHODOLOGY

4.1. INTRODUCTION:

The relationship between the researcher's view of the world and the methodology adopted in a research programme is an area that is subject to on-going debate in social sciences, where adopting and discussing any research methodology would be incomplete without addressing such debates. The basic beliefs that define human constructions and the researcher's view of the world are referred to as the research paradigm as described by Denzin and Lincoln (2008). The importance of establishing a relationship between the research paradigm and the epistemology, ontology and methodology adopted in a research, and relating all that to the type of research questions and objectives addressed, has been emphasised by several researchers (e.g. Morgan and Smircich, 1980; Crotty, 2003; Denzin and Lincoln, 2008). Furthermore, the choice of a paradigm by a researcher should encompass careful understanding of the purpose of the research (e.g. Seale, 2005; Silverman, 2005; Snape and Spencer, 2003; Cohen *et al.*, 2000), the limitations of its context (Morse and Field, 1995) and the researcher's own views and perspectives. Accordingly, this chapter will start by describing the rationale behind adopting a qualitative research method and then continue to provide a detailed account of the research paradigm, including a justification of the philosophical standpoint adopted for the methodology of the research and a discussion of its ontological and epistemological positions. The chapter will also provide a discussion about the role of the researcher in this study, while at the same time relating that to the choices made in this research study. Then, the chapter will clearly describe the research design with a justification of the research data collection and data analysis methods employed. Finally, this chapter will discuss the ethical issues related to the research and establish the rigour and trustworthiness of the study

including the criteria used to verify that. The following figure (Figure 4.1) provides a diagram of this chapter's map.

Figure 4.1.: Chapter Map



4.2. QUALITATIVE RESEARCH

Qualitative research can be defined as a collection of interpretive approaches that aim at describing, decoding, translating and accordingly bringing about meanings and understandings, not frequencies, of phenomena taking place in the social world (Van Maanen, 1983). Creswell (1994) introduced a general definition of qualitative study where he saw it as an inquiry process that aims to understand social or human problems through establishing complex, multi-dimensional views that are built up from detailed opinions of informants that are taken in their natural settings. Having said that, it becomes apparent that the rationale behind applying a qualitative research approach increases as the research moves more toward subjectivity on the objective-subjective continuum (Morgan and Smircich, 1980).

Polit and Hungler (1997) and Ellis and Crookes (1998) mentioned that qualitative research aims to describe human experiences and develop better understanding of them. Streubert (1995) also argued that it is difficult to limit human experiences to explicit and objective rational justifications; this is basically due to the level of sophistication of human being and the intangible and subtle nature of phenomena experienced (Cohen *et al.*, 2000). Stake (2000) supported using a qualitative research approach to explore certain phenomena and facilitate the understanding of connections between them as well as uncovering how people make sense of their social realities (Silverman, 1985).

Accordingly, this research will follow a qualitative research approach since the rationale behind applying a qualitative research approach matches with this research objectives, and also matches with the philosophical standpoint of this research which will be discussed in the following section. Furthermore, a number of previous studies investigating the value of different experiential learning approaches have used qualitative research methods; for example the research by Connolly (2006) which studies the effectiveness of PBL in occupational therapy practice from the

perspective of students who experienced this type of learning, the research by AlKuwaiti (2007) which evaluates the impact of PBL curricula on undergraduate medical students in Saudi Arabia, and the research by Abd Rahman (2010) which studies the effectiveness of CBL in pharmacy programmes. The aim of this research is to evaluate the extent to which HEIs appreciate and understand the value of enterprise education which aims to develop a range of students' enterprise skills in terms of generic transferable skills that are related to employability. In doing so, the research focuses on the role of experiential learning in developing those enterprise skills, and explores the learning activities applied as part of experiential learning and how they contribute to the development of graduates' enterprise skills. Such experiential learning activities can be endless and could vary a lot across different institutions, which could result in developing certain skills rather than or better than others. Furthermore, some of these skills may be developed intentionally through educational approaches that specifically aim to develop them, and others may be developed unintentionally as part of engaging in the learning experience. Accordingly, qualitative methods were seen conducive to this study. This study also aims to evaluate the extent of understanding of enterprise education at pharmacy schools through exploring experiences and practices related to the development of pharmacy students' enterprise skills and the extent to which experiential learning is utilised for this purpose; the research evaluates the different assessment methods applied and which enterprise skills are being developed and how. The research also investigates the extent to which pharmacy graduates' enterprise skills relate to the needs of the pharmacy market place and whether they meet the expectations of employers. Coming up with such explanations is only possible within a qualitative research setting; a qualitative research approach will facilitate describing such experiences and exploring any agreements or contradictions between pharmacy employers, academics and students in their views and beliefs about the contribution of experiential learning to the development of students' enterprise skills.

The nature of the relationship between the researcher and interviewees, which tends to be less formal in qualitative than in quantitative research, is another reason to apply a qualitative research approach. This less formal relationship allows more in-depth participation and elaboration, which again helps in exploring the research objectives through probing and allowing respondents to clarify issues with their own words, rather than having to choose from pre-set responses.

Before moving on to explain the paradigm and philosophical standpoints adopted in this qualitative research, it is important to point out that Punch (2005) agrees that qualitative research can cover multiple interrelated and varying aspects through the multiple methodologies and practices it involves. In comparison with quantitative research, qualitative research can direct the researcher in several dimensions, which might make it difficult at some times to adapt qualitative research to a single paradigm. It is not an easy task to differentiate between the philosophical views of qualitative research paradigms since they share a lot of the core themes. However, a researcher has to be aware of the different ways of thinking and traditions of respondents that can lead to a lot of variation in responses, and consider these in the choice of the paradigm and accordingly the wording and kind of questions asked (Patton, 2000). The following section describes these philosophical views and explains the rationale behind adopting them.

4.3. THE RESEARCH PARADIGM AND ITS UNDERLYING ONTOLOGICAL, EPISTEMOLOGICAL AND METHODOLOGICAL VIEWS

The research paradigm of any research programme – also referred to as the '*interpretive framework*' – guides the researcher's choices in that research (Denzin and Lincoln, 2008). Guba (1990) defined a research paradigm as '*a basic set of beliefs that guide action*' (p.17). Denzin and Lincoln (2008) argued that in order for a researcher to describe his/her standpoint in a paradigm, the researcher has to consider the ontology, epistemology and methodology of the research. Ontology basically describes the researcher's beliefs about how the world is and what the nature

of reality is; epistemology on the other hand discusses how knowledge can be gained about the world, and methodology highlights the best ways and approaches for gaining knowledge about this world. Even though a research paradigm does not provide detailed answers nor absolute truth (Denzin and Lincoln, 2008), it is essential for guiding and explaining the reasons behind choices taken by the researcher in any research study (Lincoln and Guba, 2000; Easton, 2002).

In this research, the views of the researcher in regard to this research paradigm go along with the social constructionism paradigm which sees that a researcher in a social research study should not only collect facts and information to calculate frequencies and patterns, but should go beyond that to value meanings and constructions to make sense of what people convey about their experiences (Easterby-Smith *et al.*, 1991). The following will explain how this paradigm matches with this research study.

For quite some time, the positivistic approach has dominated techniques for collecting data in social research. Positivists believe that the social world can only be measured with objective methods since it exists externally, and, thus, saw that genuine knowledge and truth can only be concluded through statistical approaches that confirm this truth (Easterby-Smith *et al.*, 1991). Positivists supported the logical arguments applied by empiricists who believe that knowledge could only arise from sense experiences and not from views and opinions (Markie, 2004). Post-positivist agreed with positivist about the existence of a truth (Crotty, 2003), however, post-positivism emerged to support ‘logical empiricism’, which sees that facts can be derived by a process of ‘gradually increasing confirmation’, meaning that reality can be probabilistically rather than perfectly understood (Easton, 2002). Post-positivists saw that knowledge is not based on fixed foundations but rather on human conjectures including their opinions, expressions and speculations (Easton, 2002). Accordingly, post-positivism is related to exploring and uncovering experiences rather than investigating causal relationships or verifying hypotheses (Oakley, 2000).

This approach gained the support of a lot of researchers like Hudson and Ozanne (1988) who mentioned that a lot of methods can be utilised in post-positivism to enrich our knowledge from different perspectives.

Social constructionism, the paradigm adopted in this research, took another viewpoint from the positivist and post-positivist research paradigms. Social constructionism is one of the views in qualitative research which acknowledges that a single universal reality does not exist because understanding of the world depends on peoples' perceptions, connotations, emotions and motives about the world they live in (Dyson and Brown, 2005). At a certain time, the concept of having shared experiences and common behaviours was disapproved from an extreme interpretative paradigm point of view (Hughes and Sharrock, 1997). The basic belief was that there are multiple social realities experienced by individuals that vary according to the contexts in which they lived. In the 1700s however, a new thinking started to emerge that despite the distinctiveness of individuals, people do share realities, which they develop through socialising, common experiences and voluntarism (Golafshani, 2003; Holstein and Gubrium, 2003; Snape and Spencer, 2003; Cohen *et al.*, 2000). These shared realities became to be seen as the means through which actions and interactions are built through common meanings that people link to these realities, which lead to common conventional behaviours (Hughes and Sharrock, 1997).

Crotty (2003) defined social constructionism as the view that *'all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context'* (p.6). It might be useful to point out here, very briefly though, the difference between social constructionism and social constructivism, which are used rather interchangeably at many instances. Social constructionism views that meaningful reality is socially constructed; it emphasises the idea that the worlds we live in are created through dynamic

and proactive interactions of human beings (Marshall, 1994). Greenwood (1994) also agreed to this viewpoint and added that our realities are composed of shared meanings that are produced, maintained and repeated through our social lives. Contrary to this, the constructivist view focuses on 'the meaning making activity of the individual mind', thus, focusing on the mind processes of individual minds and the distinctive experiences that each individual contributes (Crotty, 2003). Accordingly, it can be said that social constructionism focuses on the meanings constructed through social interactions of people, while social constructivism focuses on the person's learning which happens as part of the person's interactions in a group. For purposes of this research, the social constructionism paradigm is adopted, and the rationale behind adopting this paradigm is explained next.

Constructionists do not separate between the meaning and mind, nor between the subject and object, and see that people construct meanings rather than discover them (Crotty, 2003). Accordingly, the concept of ultimate truth does not exist in social constructionism since every person could construct meanings in different ways, even when they are related to a single phenomenon (Crotty, 2003; Denzin and Lincoln, 2008; Polit and Beck, 2004; Golafshani, 2003; Streubert, 1995; Lyotard, 1984). This is because social constructionists view reality as being socially constructed and determined in a subjective manner that is relevant to the context, time and place, as well as other family, cultural or social previous effects (Lafont, 2005; Etherington, 2004; Denzin and Lincoln, 2003; Ward, 2003; Natoli, 1997; Holloway and Wheeler, 1996), which makes the objective determination of an absolute truth misleading (Lafont, 2005). Burr (2003) added that understanding is built through social interaction processes that lead to construction of a number of realities without assuming that one would be better than another.

Hence, the word 'social' in social constructionism reflects that the means by which we interpret and make meanings are social ones through institutions that 'precede us', where humans become

immersed in these institutions that provide us with '*a publicly available system of intelligibility*' which become a reference for our interpretive strategies (Fish, 1990). Geertz (1973) agreed with social constructionism and spoke of culture as a means for providing '*a system of significant symbols*' which guides human behaviour and puts human experiences in order. Burr (2003) also added that the meanings that people associate with their realities are related to historical and cultural dimensions, and, thus, vary according to economic and social aspects at a time. Nevertheless, despite that knowledge changes over time (Watson, 2006; Holstein and Gubrium, 2003; Golfshani, 2003; Schwandt, 2003), common norms, perceptions and beliefs about reality are also constructed through a certain level of realism (Lafont, 2005; Rosenblatt, 2002).

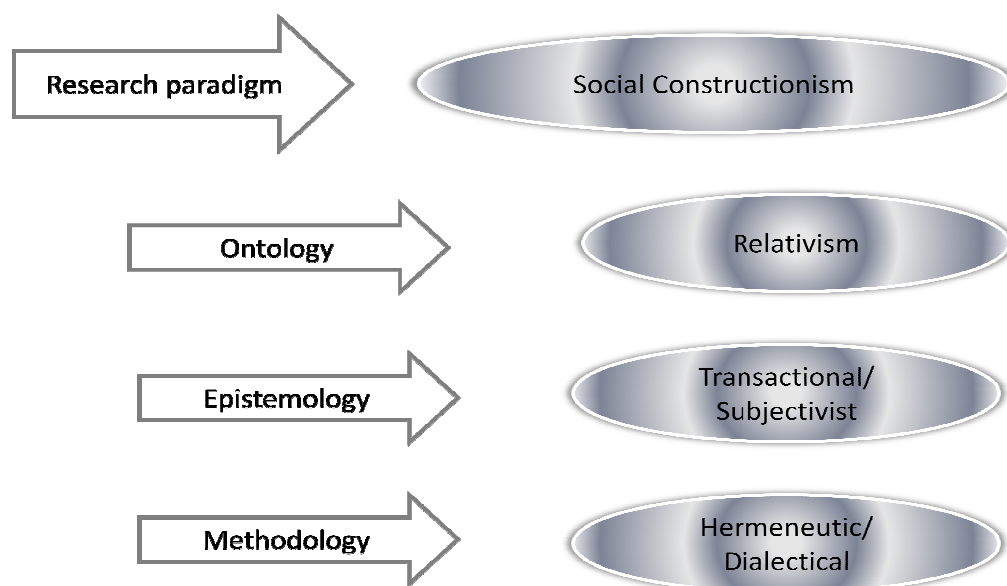
For people within a similar occupation, Hughes and Sharrock (1997) believed that there are some drivers or impacts that are common between these people. Yet, Streubert (1995) believed that people build their beliefs through constructing their own reality, where interpretations and beliefs could vary among people experiencing the same conditions (Lafont, 2005; Golafshani, 2003; Schwandt, 2003; Denzin and Lincoln, 1998; Streubert, 1995). The researcher's opinions in this regard match with the views of Warr (2005) who argued that human actions could sometimes be related to peoples' own personal beliefs that are relevant to a phenomenon, and at other times there might be declared thoughts and actions that fall under the norms and principles which are socially constructed, which could lead to several truths that do not necessarily reflect the personal own truths, but show a level of conforming to the accepted cultural and social norms available. In this sense, predictability of behaviours and actions does exist to some extent since there are societies with people socialising in them within times and cultures, where such interaction can lead to a level of predictability through social norms and acceptable actions (Hughes and Sharrock, 1997; Burrell and Morgan, 1979). Whilst this is probably true, the researcher believes people do have a freewill in their actions while they interact in their world in such ways that help them understand and, thus, attach meanings to their own behaviours as well as to others', and,

thus, create a personal individual reality of their own (Hughes and Sharrock, 1997; Schutz, 1963). Nevertheless, the researcher does not believe that people are completely free in determining their actions since, as mentioned earlier, there will always be norms and values that affect peoples' actions about what is allowable and what is not, and that does not always match with the privately held views and beliefs.

Thus, the social constructionism paradigm is deemed appropriate in this research. It views that various people have various perceptions and views about what is true (Benton and Craib, 2001), which lead to a number of incomplete truths that are subject to continuous changes (Etherington, 2004; Ward, 2003; Natoli, 1997). Accordingly, comments by participants do not prove ultimate truth but reflect shared experiences (Lafont, 2005; Rosenblatt, 2002). Thus, in this research the researcher will work on gathering the various views of the research participants in a logical way following a clear approach in an attempt to connect areas of commonalities and differences from the multiple perspectives reached, which should help in shedding light on common practices and weaknesses, as well as possible areas of improvement.

According to Lincoln and Guba (2000), a social constructionism paradigm goes along with relativist ontology, transactional epistemology, and hermeneutic methodology; this is shown in the following Figure 4.2. In the following sections, the researcher will explain how each of these choices matches with the research philosophy and paradigm adopted, and how they match with the objectives and purpose of this research as well.

Figure 4.2.: The social constructionism paradigm and its underlying ontological, epistemological and methodological views



Developed from Denzin and Lincoln (2008)

4.3.1. SOCIAL CONSTRUCTIONISM AND THE RELATIVIST ONTOLOGY OF THIS RESEARCH

As mentioned earlier, ontology describes the researcher's beliefs about how the world is and what the nature of reality is (Denzin and Lincoln, 2008). According to Lincoln and Guba (2000), the social constructionism paradigm adopts relativist ontology (relativism) that rejects the views of naïve realism ontology adopted by positivists and critical realism ontology adopted by post-positivists regarding reality and its understanding. Naïve realism ontology on one hand implies objectivism which, as mentioned earlier, believes that 'real' reality exists externally and that ultimate truth can be apprehended (Crotty, 2003; Denzin and Lincoln, 2008). The critical realism ontology on the other hand also sees that there is a 'real' reality, but sees that this reality could only be probabilistically understood rather than perfectly (Denzin and Lincoln, 2008). Critical realists see that data are the sources from which information is generated about people in a study, and the circumstances and contexts in which they live; thus, this ontology is typically seen in research that applies

analytic methods such as grounded theory, symbolic interactionism, framework analysis, comparative analysis and some other forms (Gibbs *et al.*, 2006).

However, the ontological thought of social constructionists is a relativist one, which sees that multiple truths exist and data generated in a research cannot uncover an objective universal truth about the world (Denzin and Lincoln, 2008). Accordingly, relativism sees that data can uncover one of many behaviours or approaches experienced by people, and reveals one of the ways as to how these experiences shape the views of people about their world and how those people express their views and try to convince other people about them (Crotty, 2003). Thus, this ontology is seen in research that applies analytic methods such as social constructionism, narrative analysis and discourse analysis (Gibbs *et al.*, 2006).

4.3.2. *SOCIAL CONSTRUCTIONISM AND THE SUBJECTIVIST EPISTEMOLOGY OF THIS RESEARCH*

As mentioned earlier, epistemology discusses views related to knowing and learning (Denzin and Lincoln, 2008), and, thus, epistemology reflects opinions of what knowledge is, how knowledge can be gained about the world, as well as the characteristics of knowledge and to what extent it can be determined (Perry, 1981). According to Lincoln and Guba (2000), the social constructionism paradigm adopts a transactional/subjectivist ontology. Social constructionism came to oppose objectivism which saw that reality exists whether or not people are aware of it. Objectivists separated between the subject and the object since they saw that reality exists outside the mind, and accordingly coming to understand or recognise something merely means discovering something that has always been there (Crotty, 2003). Therefore, objectivists believe that by asking the right questions a researcher can find the objective truth (Crotty, 2003). This objectivism was rejected by constructionists who view reality as socially constructed rather than objectively determined

(Denzin and Lincoln, 2008), and believe that truth and understanding emerges when people engage with their realities (Crotty, 2003).

The main interest of the transactional perspective is on likelihood, apprehension, and meaning through various approaches of inquiry other than scientific certainty, calculations, and encapsulation of reality (Cornell, 1995). The transactional view in epistemology rejects the search for certainty and the idea of total objectivity; rather it emphasises the human factor and subjectivity that take part in inquiry (Madden, 1991). The transactional epistemology view emphasises the need to be aware of the subtle ways through which a researcher takes part in a research study, especially in research that applies visual interpretation (Ittelson, 1960). This view sees that subjects and objects cannot be separated and neither of them exists independent of the other; it also sees both as part of the life situation they exist in, thus, making it pointless to discuss either apart from the context in which it is happening (Ittelson, 1973). In other words, supporters of the transactional view see that meaningful behaviour of people forms the context in which reality exists, so instead of emphasising separate subjectivity it emphasises transactional subjectivity; and accordingly, a transactional/ subjectivist epistemology does not deny the existence of reality but rather emphasises the importance of the contribution of the human participation element in formulating and understanding this reality (Madden, 1991). Having said that, it is important to point out as well that this strong relation between the subject and object also entails that the surrounding historical as well as social and cultural situations would impact the knowledge; it would also make knowing a changing activity where new meanings could emerge and replace existing ones through interactions and processes that would change the knowledge somehow (Madden, 1991).

4.3.3. SOCIAL CONSTRUCTIONISM AND THE HERMENEUTIC/DIALECTICAL METHODOLOGY OF THIS RESEARCH

A research methodology generally refers to the processes, main beliefs, and procedures by which problems are handled and questions are answered (Bogdan and Taylor, 1975). In light of the growing debates about research paradigms, a number of research methodologies have grown in importance as grounded theory, ethnography, phenomenology and hermeneutic phenomenology (Denzin and Lincoln, 2000). According to Lincoln and Guba (2000), the social constructionism paradigm adopts an hermeneutic/dialectic methodology. It is important to point out here that both the hermeneutic and dialectic methods have phenomenological traits; in hermeneutics the meanings revealed are basically what has been interpreted, and in a dialectic method the meanings revealed resemble ways of living which are in movement and carried further (Landman, 1990). Therefore, an hermeneutic/dialectic methodology is also often referred to as an hermeneutic phenomenology. However, a distinction has to be made between phenomenology and hermeneutic phenomenology which are used interchangeably in many instances (Laverty, 2003); this distinction is explained next.

Edmund Husserl and Transcendental Phenomenology

Phenomenology is the study of experiences as lived by human beings or the study of '*the life world*' (Van Manen, 1997, p.184). The roots of phenomenology were first set by Edmund Husserl (1859-1938) (Cohen, 1987; Koch, 1996; Scruton, 1995) who started his life as a mathematician and took a turn when he decided to complete his education in philosophy where his views grew with time to become dominated by subjectivity (Cohen, 1987; Reeder, 1987). According to Husserl (1970), understanding the 'life world' by people is usually limited to common sense and what is taken for granted; however, Husserl saw that this world is not readily accessible and studying of those common sense

phenomena should go further to discover new and/or hidden meanings. Dreyfus (1987) reported that Husserl aimed at revealing the structures of consciousness and evaluating in detail how these structures contribute to making meanings. Edie (1987) explained that these structures are defined as essences that give objects meanings, as certain kinds of objects or experiences, which set them aside from others.

Husserl rejected the concept of applying scientific methods for studying human matters in psychology since human beings live in a world where they do not simply react to what happens (Walters, 1995). His philosophy moved away from the Cartesian dualism which sees that reality exists externally and is not related to the individual; rather his philosophy saw that the human conscious and perceptions interfere with their understanding of the external stimuli (Jones, 1975). Husserl saw phenomenology as an approach for digging into reality to reach true absolute meanings about human experiences (Jones, 1975; Koch, 1995), and perhaps this is why researchers such as Hallett (1995) related Husserl's phenomenology to positivism which, in contrast to interpretivism, aims at establishing a basis for absolute truth.

Husserl's Phenomenology was mainly focused on studying phenomena as they appear to the consciousness (Koch, 1995), and believed that the person and world together make up the consciousness (Valle *et al.*, 1989). In this regard, Husserl believed that getting to the 'things themselves' can be achieved through intentionality which sees that there are always further meanings beyond human experiences. So despite the essential relationship that Husserl saw between the experience and the object, this relation is distinguishable (Crotty, 1996). Therefore, knowledge of reality starts with conscious awareness, where intentionality assumes that when the mind is directed toward an object, the human mind is

certain of its conscious awareness toward that object, and accordingly it is intentionality that actually directs us toward objects (Lavery, 2003).

Accordingly, Husserl introduced the concept of phenomenological reduction or bracketing (Jones, 1975; Polkinghorne, 1983; Osborne, 1994), where he proposed that in order to establish successful contact with essences, a person has to detach, set aside or 'bracket' the outside world as well as personal biases. Osborne (1994) defined bracketing as a process by which a person identifies his/her pre-assumptions related to the nature of the phenomena and then detaches him/her self from these pre-assumptions in order to see the phenomenon as it really exists. In doing so, Husserl saw that the consciousness can be purified from any attitudes or influences that interrupt human experiences and force different meanings and understandings on them (Crotty, 1996).

Martin Heidegger and Hermeneutic Phenomenology

The previous paragraphs introduced Husserl's Phenomenology; this introduction was necessary to understand how phenomenology evolved and what it is based on. However, for purposes of this research, the Hermeneutic Phenomenology is adopted. Hermeneutic Phenomenology was introduced by Heidegger and later developed and changed by Gadamer, where Gadamer's views were deemed more appropriate for this research, and, thus, adopted as this research methodology. This sub-section will explain Heidegger's Hermeneutic Phenomenology followed by an explanation of Gadamer's Hermeneutic Phenomenology in the next sub-section.

Heidegger was Husserl's student; he became very educated in phenomenological intentionality and bracketing so that Husserl announced him as his successor to the professorship at the University of Freiberg where they both taught (Lavery, 2003).

However, once handed the responsibility of the professorship, Heidegger's philosophy took a turn away from Husserl's Phenomenology.

As in Husserl's Phenomenology, Heidegger's Phenomenology also focused on studying the 'life world' and details about human experiences that may be seen as common sense or taken for granted (Wilson and Hutchinson, 1991). However, while Husserl's interest was in exploring phenomena and describing the world as lived by human beings who were seen as subjects isolated from the surrounding objects (Dreyfus, 1987), Heidegger's interest was on 'Dasein' which is 'the situated meaning of a human in the world', which emphasises his principle of being part of the world and not separate from it; in other words Heidegger had an existential viewpoint which saw that understanding the human world is in an inseparable part of understanding humans (Jones, 1975).

Accordingly, Heidegger (1927/1962) rejected the concept of bracketing as he did not see the conscious as something that can be detached from the world (Lavery, 2003). He declared that it is impossible for humans to be directed toward an object without reference to their own background and history which are essentially involved in every experience interpretation (Packer, 1985). Heidegger also saw that this background of a person includes cultural factors that are raised in any person as he/she grows up and is reflected in different ways of giving meanings to the world (Koch, 1995). Such pre-understandings which are influenced by human backgrounds were seen as 'a priori' concept since they exist as part of us (Dreyfus, 1991). Accordingly, Heidegger did not believe that a person could isolate his/her understandings before attempting to understand a phenomenon since the pre-understandings that humans have are an inseparable part that exist along with them as part of their being.

Thus, Heidegger moved away from Husserl's epistemological views that focus on understanding phenomena and being to an ontological focus which sees that understanding goes side-by-side with existence, and through this understanding we realise the way we are and not the way the world is (Heidegger, 1962).

Heidegger's Phenomenology is described as an Hermeneutic Phenomenology since it sees that interpretation is part of every human encounter, and that this interpretation is influenced by humans' historical, social and cultural backgrounds (Heidegger, 1927/1962).

Hermeneutics was defined by Moustakas (1994) as *'science [which] involves the art of reading a text so that the intention and meaning behind appearance are fully understood'* (p.9). Packer (1985) clarified that hermeneutics aims continuously to reveal and explain the researcher's realistic understanding of what is researched, which consequently entails becoming increasingly attentive to certain activities, behaviours and practices that construct the background which influences how phenomena come about and emerge. Therefore, hermeneutics is a continuous activity of human beings that enables them to understand.

The adopted methodology of Hermeneutic Phenomenology matches with this research paradigm of social constructionism since it sees that the world and the people living in it are inseparably related in contexts that influence and are influenced by peoples' backgrounds including their social, historical and cultural aspects (Munhall, 1989), and that these backgrounds influence people's determination of what is 'real' (Lavery, 2003). In this research, Hermeneutic Phenomenology is seen to match with this research transactional epistemology since it sees that people are constructed by the world around them, but at the same time they also construct this world in different ways that are influenced by their backgrounds leading to different meanings (Munhall, 1989), so the

relationship between the subject and object is inseparable (Koch, 1995). Furthermore, Hermeneutic Phenomenology does not have an objectivist view, neither does it claim to reach ultimate objectivity, which matches with the social constructionists' views about the existence of multiple truths or realities and their rejection of one single ultimate truth.

Hans-George Gadamer's Support and Changes to Hermeneutic Phenomenology

Gadamer's Hermeneutic Phenomenology is adopted as this research methodology. Gadamer was one of Heidegger's students who became influenced by Husserl's and Heidegger's philosophies. He supported Heidegger's philosophy and developed it into practical application (Gadamer, 1976; Polinghorne, 1983). Gadamer agreed that understanding happens through interpretation and that language is the means through which understanding happens and, thus, cannot be separated from understanding in 'life world' (1960/1998). Gadamer rejected the concept of bracketing introduced by Husserl, but he also put aside the negative meaning of prejudice as well (Gadamer, 1975). Rather, Gadamer (1975) introduced the concept of 'fusion of horizons' which he viewed as a basis for interpretation.

Gadamer (1975) saw that both the subject and text, or object of study, live within the limits of their own horizons which are decided by their historical backgrounds. Draper (1997) reported that Gadamer believed that it is not possible for a person to set aside his/her own horizon in order to interpret a text, but at the same time this should not mean that the person's preconceptions about something would persistently impose on his/her interpretations. Rather, Gadamer saw that understanding comes through an inclusive horizon that combines the limited horizons of the person and the text in a dialectical interaction to reach a common view that concerns both, and where both horizons become fused (Draper, 1997; Polkinghorne, 1983). Accordingly, Gadamer's Hermeneutic

philosophy supported developing new horizons and developing possible new meanings through questioning which Gadamer saw as an important tool to reach this understanding (Gadamer, 1975).

4.3.4. *HOW DOES THE SOCIAL CONSTRUCTIONISM PARADIGM AND THE ADOPTED ONTOLOGY, EPISTEMOLOGY AND METHODOLOGY MATCH WITH THIS RESEARCH STUDY?*

In this research, the researcher aims to explore the extent of understanding of enterprise education and the current efforts placed to develop students' enterprise skills at pharmacy schools in the UK HEIs. In doing so, the researcher wants to evaluate the significance of the contribution of experiential learning activities to the development of those enterprise skills, as well as explore academics', employers' and students' opinions as to the value and need for these learning activities and consequently the development of enterprise skills. Even though it might not be possible in this study to explore all the learning activities applied by pharmacy schools for the development of students' enterprise skills, nor come up with a best practice for applying experiential learning and developing enterprise skills in the pharmacy education context, the research will add more clarity about the available educational practices in pharmacy, possible gaps or areas of improvement, views about them, and how these views have affected the application of experiential learning activities and assessment methods. Furthermore, this research study aims to describe good educational practices applied in pharmacy education supported with comments about people's views about them.

Such views that will be revealed in this research might be influenced by the culture of organisations in which the interviewees work/study, and might be influenced by their backgrounds as pharmacists who studied pharmacy and worked in one of its various sectors. The researcher will take account of the interviewees' contexts where they will all

be pharmacy academics or students who are actually involved in pharmacy education and learning, or pharmacy employees who deal with pharmacy graduates and are aware of their needs. This is an important point since the historical, social and cultural backgrounds of people are considered influential in the hermeneutic methodology adopted in this research. Additionally, the transactional/ subjectivist epistemology adopted also stresses the importance of the human participation element in formulating and understanding this reality (Madden, 1991); it sees that a subject and object cannot be separated and that it is pointless to discuss research apart from its context.

Consequently, the researcher does not expect to find ultimate objectivity through the interviews that will be conducted since the views of the interviewees are expected to be subject to various organisational and social factors that might influence their opinions, not to mention that this research takes place at a certain time in order to explore a progressive topic where peoples' view and opinions are expected to emerge and possibly change with time. Such a perception also matches with the philosophy of this research which, besides stressing the subject and object relationship, also views knowing as a changing activity that is subject to new emerging meanings that could possibly replace existing ones through interactions and processes that could influence our knowledge (Madden, 1991)

In accordance with the methodology of this research, the researcher completely supports Heidegger's and Gadamer's views that bracketing is impossible to achieve, and also supports Gadamer's views about the contribution of the horizons of both the researcher and the text in building meaning. It is believed that the role of the researcher in this research combined with her background as a pharmacist who has experience working in different sectors of pharmacy should help in contributing to this research and building understanding about peoples' experiences and their views about pharmacy education and

enterprise skills demonstrated by pharmacists. The multiple interviews (discussed in Section 4.5) arranged with interviewees should help the researcher engage with interviewees and understand their views through a process of questioning, and accordingly reach a common understanding that concerns both. Nevertheless, the researcher has taken measures to ensure the trustworthiness and rigour of this research, which are discussed in Section 4.8, and also included separately in Section 4.4 describing the role of the researcher in this research.

Accordingly, it becomes clear that the aim and objectives of this research match with the social constructionism paradigm and its relativist ontological, transactional epistemological and hermeneutic phenomenological views. Furthermore, Evensen (2000) supported adopting a constructionism paradigm in research that uncovers perceptions as well as drivers and drawbacks related to application of PBL, which is one of the most commonly applied experiential learning approaches.

4.4. THE RESEARCHER'S ROLE

In accordance with this research paradigm, the researcher believes that different people have different points of view about the world they live in which leads to different interpretations, meanings and understandings among different people. The researcher's views go along with the social constructionism paradigm that there is no single objective truth to be revealed because reality is socially constructed rather than objectively determined (Golafshani, 2003; Ward, 2003; Crotty, 2003; Lincoln and Guba, 1985), leading to several truths that can vary with new experiences, socialisations and interpretations (Oakley, 2000; Rossman and Rallis, 1998; Hodge, 1995). Nevertheless, the researcher believes that commonalities exist between peoples' worlds resulting in similar meanings attached to some of their common experiences (Lafont, 2005; Rosenblatt, 2002), making these interpretations generalisable to some degree.

Some authors argue that qualitative research is purely inductive where all findings are grounded in the views and experiences of respondents in the research (Litva and Jacoby, 2002; Morse and Field, 1995; Lincoln and Guba, 1985; Glaser and Strauss, 1967). From another perspective, other authors argue that it is almost impossible to reach pure inductivity (Rossman and Rallis, 1998; Morse and Field, 1995), basically because of the assumptions and prejudices of the researcher (Parahoo, 1997). Morse and Field (1995) argue that deductivity becomes more evident as a research study approaches its end where the researcher would seek to verify the findings of the study (Morse and Field, 1995). The researcher's views in this research study match with the latter viewpoint, and also match with Gadamer's hermeneutics view in that interpretation is actually the point where the horizons of both the researcher and the text fuse at points of common understanding. Such personal beliefs make it necessary to discuss the role of the researcher in this study in a reflexive manner.

The process and results of a study can be enriched through the researcher's acknowledgement of his/her presence in that study (Etherington, 2004). Nevertheless, since assumptions, thoughts and prejudices can influence the researcher's position and views about truth through close engagement in data collection and interpretation (Silverman, 2006; Etherington, 2004), it is important for a researcher to identify them in a reflexive way (Silverman, 2006, Richards, 2005; Polit and Beck, 2004, Warren, 2002; Glaser and Straus, 1967). Reflexivity is used to point out the researcher's participation in a research study (Ellis and Crookes, 1998; Cluett and Bluff, 2000), where the researcher's opinions and views alongside the context of the study contribute to this reflexivity (Hammersley and Atkinson, 1995; Silverman, 1985; Mauthner and Doucet, 1998; Edward and Ribbens, 1998).

Therefore, it is important from one aspect to acknowledge the researcher's background, qualifications and experience which are important in qualitative research since the researcher is

the main tool for data collection and interpretation (Patton, 2000). Being a pharmacist should help the researcher engage with participants and understand their language. This should also add to the researcher's awareness of the limitations and obstacles facing pharmacists during their studying and working in the marketplace. Accordingly, the researcher will be able to empathise with the respondents and understand more clearly how experiential learning activities are embedded within the pharmacy courses to develop students' enterprise skills. Furthermore, the researcher has done placements in retail pharmacies and a hospital pharmacy, and following graduation, worked in the quality unit of a multinational pharmaceutical company, which all added to the researcher's awareness of the pharmacy real-world working environment and some of the challenges facing pharmacists in different contexts. The researcher also has a three-year working experience in the quality unit of an HEI which helped in adding more understanding to the process of developing curricula and engaging students in innovative learning activities in such ways that support meeting the accreditation requirements and delivering graduates who are equipped with the necessary skills required in the marketplace.

Furthermore, the personal learning experience of the researcher was more of a traditional one that focused mainly on knowledge transfer from academics to students. Accordingly, students were not really involved in the learning process and were more of passive listeners in traditional lectures. Assessment methods were mostly applied through exams that focused on knowledge regurgitation, where the more one memorises the higher his/her chances of getting higher grades. Students were exposed to laboratory environments where they conducted several experiments, but again these followed pre-set procedures that we were supposed to follow without actually engaging in research about the methods and approaches of conducting these experiments. Accordingly, students did not really understand why they were doing these experiments or how they related to what they learned.

The amount of knowledge learned during the researcher's studies was massive and related to different areas. After graduation, the problem faced by the researcher alongside her colleagues was that they did not really understand how all that knowledge related to the real-world they were about to enter, and the comment '*all that knowledge we learned... for nothing... we're not applying any of it!!!*' was often heard by many graduates. However, during real-life experience, the researcher came to understand that the problem was not in the knowledge itself; pharmacy is a science degree and pharmacy graduates must have a strong base of knowledge to assume the responsibilities they are about to face in the real-world. The researcher realised that a lot of the knowledge gained is actually important in real-life contexts, but the problem was in the learning process which did not help pharmacists make sense of that knowledge and see its relation to real-life. So instead of being a graduate who was ready for the real-world, it took the researcher and her colleagues a couple of years to engage in real-life and understand it.

Therefore, the researcher started to think about approaches to help pharmacy graduates assume their roles in the real-world, where HEIs were seen to have a possible significant contribution. During the researcher's work experience, it was noted that introducing improvements into curricula in ways that consider more student engagement in the learning process can have significant effects on developing students' knowledge and skills as well, in addition to making them more motivated self-learners. Here, the researcher considered the role of innovative learning activities to be an important one in helping pharmacists understand the application of their knowledge while at the same time build up their character. The researcher saw that such learning activities could help in equipping graduates with a range of skills that should help them become more enterprising and more efficient contributors to the development of their profession and their work environments regardless of whether they become employees or self-employed.

Applying reflexivity in qualitative research requires a researcher to place him/her self in research processes in ways that acknowledge one's prejudices and perceptions as well as the participants' (Savin-Baaden, 2003). In this section, the researcher has outlined her views and thoughts regarding this research study. Next, this chapter will explain the research design and processes implemented to take an honest account of the views and perceptions of research participants about this research study in ways that consider minimising any personal biases that could affect the trustworthiness and rigour of the research study.

4.5. RESEARCH DESIGN

Developing enterprise skills can raise debates as to how these skills are developed, which of these skills are important and why, and who is responsible for developing them and at which stage(s). Out of understanding these debates, this research is designed to consider the views of all the main parties that can have an effect on developing pharmacy student's enterprise skills, and those include pharmacy employers in the marketplace, pharmacy academics in HEIs and the pharmacy students themselves.

Enterprise skills can be developed through various ways. However, this research focuses on the significance of the contribution of experiential learning in the development of enterprise skills through the various learning activities it involves. Therefore, the research objectives and questions are stated from a position of investigating pharmacy employers', academics', and students' views. Employers' opinions and expectations are sought regarding the need for these skills, the level of skills demonstrated by recent graduates, and whether they should be developed by pharmacy schools during HE or afterwards. Pharmacy academics' opinions and views are evaluated regarding the current practices in enterprise education, the skills focused on in the educational process and the contribution of experiential learning activities toward the development of students' enterprise skills. The research will also evaluate pharmacy students' views as to the value and need

for enterprise skills and their opinions about the impact of experiential learning activities on developing the skills needed in the workplace environment.

The following sections will describe in detail this research design including an explanation of the sampling techniques, data collection methods and data analysis methods applied.

4.5.1. SAMPLING

Data are collected in this research from employers in the pharmacy workplace, pharmacy academics at pharmacy schools in HEIs and pharmacy students at pharmacy schools in HEIs. In order to approach these samples, a combination of purposive sampling and snowball sampling techniques was used. Purposive sampling involved consciously looking for participants who could contribute to this study. Snowball sampling – also referred to sometimes as network or chain referral sampling – was used where data were collected from a small group of people who are experts in the field of study, who were then requested to select other respondents whom they believed also know a lot about the phenomenon being studied.

Employer respondents were mainly selected using snowball sampling; the researcher started by asking a number of friends if they are in contact with pharmacy employers in the retail, hospital and industry sectors, who might be interested in participating in the research, and those who agreed to take part were then requested to select other referrals and so on. As for academic respondents, the sampling started by applying purposive sampling by viewing the biographies of a number of academics at different pharmacy schools in UK, then at least two academics teaching at pharmacy schools in ten HEIs were contacted by email (including academics teaching practice-related courses and science-related courses at each pharmacy school) and requested to participate in the research; those who replied back were requested to select other academics at their schools or other schools

whom they believed would be interested in taking part. Student respondents were selected by applying the same approach followed in selecting employer respondents.

The researcher then contacted all the selected referrals, and those who agreed to take part in the research were requested to locate other respondents as well and so on. The snowball technique was continued until the data collection process yielded no additional consequential information. In total, thirteen interviews and three reflective interviews were conducted with pharmacy employers, and twenty interviews and four reflective interviews were conducted with pharmacy academics, in addition to four interviews with pharmacy students.

The snowball technique is often regarded as a type of purposive sampling since respondents are recommended based on having a set of desired traits and characteristics that ensures their ability to contribute and add to the subject area, and in many cases this technique is useful for finding people who are not usually easily accessible through other sampling strategies. Therefore, the interviews conducted are regarded as key informant interviews because they are conducted with experts in the field of study with specific knowledge and understanding that can provide insights on issues and problems specific to the area of study and give recommendations for solutions.

According to Jankowicz (1995), such sampling techniques are very useful for defining the basic characteristics underlying certain phenomena by targeting the personal experiences and understandings of specific people. Furthermore, Cohen *et al.* (2000) and Hughes and Sharrock (1997) agreed that the best people to express views about a phenomenon are those who actually experience them since they are the best to describe them. Therefore, in order to achieve balanced perspectives in this research from the three basic categories of respondents involved – pharmacy employers, pharmacy academics and pharmacy students

– it was necessary to include respondents with a range of attitudes and opinions towards enterprise skills and experiential learning that could cover the various aspects and divisions related to pharmacy as closely as possible. This is detailed in the following paragraphs.

The criteria for respondents selected to take part in this research from the pharmacy workplace environment basically included pharmacists working in pharmacy-related environments. This included a balanced mixture of thirteen interviews including seven employers from retail, three employers from hospitals and three employers from the pharmaceutical industry. A higher number of employers was included from the retail sector due to the fact that about 90% of pharmacy graduates end up working in retail, which makes retail employers exposed to a significantly larger number of pharmacy graduates, taking into consideration that a significantly high percentage of retail pharmacies operate as part of multiples ‘chain pharmacies’ like Boots’, Sainsburys’ and Tesco’s’, for example, as opposed to the smaller independent pharmacies. Such a mix of employers from various sectors is important to evaluate the extent of the need for enterprise skills in the pharmacy context. It is also important to evaluate the extent of satisfaction of employers in these main sectors regarding the level of enterprise skills demonstrated by recent graduates, and whether there are any major differences in the level of skills demonstrated by graduates in these three sectors. Pharmacy employers will also help in evaluating who is more responsible for developing graduates' enterprise skills, whether it is the employment sector or HEIs. All the employers contacted to take part in this research are involved in dealing with recent pharmacy graduates, those involved in assessment and evaluation of pharmacy pre-registration students and recent pharmacy graduates in the workplace are specifically targeted in sampling. The following Table 4.1 summarises the key characteristics of employer respondents in this research. The table provides a summary of the sector in which each employer works, and the last column shows the reference symbol used to

identify each respondent, where E1 up to E13 are used to indicate the thirteen employer respondents in the research, and letters of (R), (H) or (I) are included in each reference symbol to indicate whether the employer works in the retail, hospital or industry sector respectively.

Table 4.1.: Key characteristics of employer respondents in this research

Employer Number	Sector	Employer reference symbol
E1	Works as a locum retail pharmacist for a number of pharmacies.	E1(R)
E2	Works as a locum retail pharmacist for a large chain pharmacy and some privately owned pharmacies	E2(R)
E3	Works in retail as a business development manager for a small chain pharmacy	E3(R)
E4	Worked as a retail pharmacist and held some managerial responsibilities at a large chain pharmacy Recently retired	E4(R)
E5	Works as a retail pharmacy manager at a large chain pharmacy	E5(R)
E6	Worked as locum retail pharmacist for a number of pharmacies. Recently retired	E6(R)
E7	Works as a retail pharmacist for a large chain pharmacy	E7(R)
E8	Works as an hospital pharmacist, and also works part-time as a locum pharmacist for a large chain pharmacy	E8(H)
E9	Works as a senior hospital pharmacist	E9(H)
E10	Works as a senior hospital pharmacist, and responsible for supervising pre-registration students at the hospital	E10(H)
E11	Works in the research and development department of several industrial pharmaceutical companies.	E11(I)
E12	Worked as the corporate director, technology transfer and process improvement/ industry. Has a long history of experience in the area of quality assurance and compliance in pharmaceutical industry In 2012, promoted as a General Manager at the multinational pharmaceutical company she works at.	E12(I)
E13	Worked as an Industrial pharmacist for 20 years in a number of multinational pharmaceutical companies. Recently retired.	E13(I)

In academia, academics involved in teaching undergraduate pharmacy students at schools of pharmacy were sought. In order to gain a comprehensive idea about the development of enterprise skills through the educational process, certain issues were considered. The first

consideration involved including multiple HEIs (seven HEIs in total) that are distributed over a wide geographic area and that have different rankings as pharmacy schools in the UK. The second issue considered is the sample of academics which included a balanced mixture of academics involved in teaching both courses related to the practice of pharmacy (e.g. pharmacy practice), and courses related to the science of pharmacy and pharmaceutical chemistry (e.g. pharmacology). The total number of interviews with academics was twenty interviews including twelve interviews with academics teaching practice-related pharmacy courses, and eight interviews with academics teaching science-related courses. The respondents also included a range of older (more than 25 years experience) and younger staff (less than 25 years experience) in order to add more variety and possibly more views about the research topic. The following Table 4.2 summarises the key characteristics of academic interviewees in this research. The table provides a brief summary of the relevant biography of each academic, and the last column shows the reference symbol used to identify each respondent, where A1 up to A20 are used to indicate the twenty academic respondents in the research, and letters of (S) or (P) are included in each reference symbol to indicate whether the academic teaches science or practice-related courses respectively. Furthermore, the table provides general rankings of the pharmacy schools in which each academic works in order to show the variety in HEIs included in the sample. The rankings are according to the Complete University Guide/ University Subject Tables (2013), and include all pharmacy schools in the UK teaching both under and post-graduates pharmacy courses, and therefore the number exceeds that of pharmacy schools teaching only undergraduate pharmacy courses (i.e. 25 accredited pharmacy schools as explained in Section 1.4.1).

Table 4.2.: Key characteristics of academic respondents in this research

Academic number	University ranking*	current teaching (science/ practice) and brief biography (when applicable)	Younger/ older academic staff**	Academic reference symbol
Academic 1	31 – 35	Teaches science-related courses Engaged in curricula development Also works as a clinical pharmacist	Younger	A1(S)
Academic 2	31 – 35	Teaches practice-related courses Engaged in curricula development Previously worked as an hospital pharmacist	Older	A2(P)
Academic 3	31 – 35	Teaches science-related courses Engaged in research and curricula development	Older	A3(S)
Academic 4	31 – 35	Teaches science-related courses Engaged in research	Younger	A4(S)
Academic 5	6 – 10	Teaches practice-related courses Engaged in curricula development	Younger	A5(P)
Academic 6	6 – 10	Teaches practice-related courses Engaged in curricula development	Younger	A6(P)
Academic 7	6 – 10	Teaches science-related courses Engaged in research	Older	A7(S)
Academic 8	6 – 10	Teaches science-related courses Engaged in research	Older	A8(S)
Academic 9	16 – 20	Teaches practice-related courses Engaged in distant learning e-programmes	Older	A9(P)
Academic 10	16 – 20	Teaches practice-related courses Engaged in research and curricula development	Younger	A10(P)
Academic 11	16 – 20	Teaches practice-related courses Engaged in curricula development, and works closely with the RPSGB	Older	A11(P)
Academic 12	16 – 20	Teaches practice-related courses Engaged in research	Older	A12(P)
Academic 13	16 – 20	Teaches practice-related courses Currently responsible for managing pre-registration students at an hospital Previously worked as hospital and as retail pharmacist	Younger	A13(P)
Academic 14	11 – 15	Teaches practice-related courses Engaged in curricula development Previously worked as a clinical pharmacist	Younger	A14(P)
Academic 15	11 – 15	Teaches science-related courses Engaged in research	Younger	A15(S)
Academic 16	36 – 40	Teaches practice-related courses Engaged in research	Younger	A16(P)
Academic 17	36 – 40	Teaches science-related courses Engaged in research	Younger	A17(S)
Academic 18	36 – 40	Teaches practice-related courses	Older	A18(P)
Academic 19	36 – 40	Teaches practice-related courses (started his career teaching science-related courses and then moved to teaching practice-related courses) Engaged in research Previously worked as an industrial and as an hospital pharmacist	Older	A19(P)
Academic 20	6 – 10	Teaches science-related courses Engaged in research	Younger	A20(S)

*The Complete University Guide – University Subject Tables (2013)

**Younger or older staff corresponding to less than or more than 25 years of experience respectively

This mixture of academics is important to assess the application of experiential learning in both areas of science and practice, especially in light of the recent shift in the focus of pharmacy education from science to practice. This combination is also important to evaluate if there is a balanced focus on applying experiential learning activities in both areas, and whether this happens according to a pre-determined and organised scheme in coordination between these divisions or according to individual and personal efforts by academics. Academics perspectives are also important to determine their views as to whether and how experiential learning might contribute to the development students' enterprise skills needed in the workplace environment. Course leaders involved in developing pharmacy curricula as well as academics responsible for following up on accreditation requirements for the MPharm courses were specifically targeted in sampling.

It is important to point out here that reflective interviews were also conducted in this research with pharmacy employers and pharmacy academics. The order of interviews went as follows; the first set of interviews was conducted with thirteen pharmacy employers, the second set of interviews was conducted with twenty pharmacy academics, then the third set of interviews included three reflective interviews with pharmacy employers, and finally the fourth set of interviews included four reflective interviews with pharmacy academics. The respondents included in the reflective interviews were among those included in the initial interviews. The objective of these reflective interviews was to make sure that the initial views and perceptions of pharmacy employers and academics – which they reflected in the first sets of interviews conducted with them – are brought back to a group of them with the feedback of other concerned parties. This allowed pharmacy employers and academics a chance to reflect again on both their initial views and other respondents' views as well. Additionally, these reflective interviews helped the researcher to confirm

personal interpretations concluded from the interviewees and, thus, minimise the chances of personal bias in the results.

Finally, four pharmacy students were selected for personal interviews from three different pharmacy schools in the UK. Three of these students were final-year (fourth-year) students and one was a second-year student. Interviews with pharmacy students aimed to evaluate their views as to the need and value of enterprise skills for pharmacists, and whether they felt the educational process helps them in developing those skills during their studies. These interviews also enabled evaluating students' views as to the significance of the contribution of experiential learning activities in the development of their generic transferable skills, and whether they felt they are being well-prepared to meet the challenges of the real-world.

4.5.2. DATA COLLECTION

Eraut (2000) contended that several problems may face researchers looking into implicit dimensions to learning and the application of professional knowledge since the professional practice, skills and know-how can include many hidden elements. Accordingly, he recommends applying different suitable methods that would allow a researcher to investigate as thoroughly as possible all the hidden and direct elements of knowledge. Furthermore, Denzin and Lincoln (2003) agreed that getting descriptions about various experiences is best attained through qualitative approaches that bring the researcher closer to those participants. Therefore, the knowledge in this research is built through interactions between the researcher and respondents to explore their opinions about their current practices and how they have come to apply them. Consequently, personal interviews were selected as the data collection method in this research. All interviews were conducted by the researcher herself to allow for more involvement in the

research topic and building up of knowledge through a mutual process of interaction with a number of various interviewees. As mentioned earlier, the interviewees involved in this research include pharmacy academics who are involved in teaching pharmacy curricula and might be applying experiential learning in their teaching, and pharmacy employers who are involved in dealing with pharmacy students and graduates. Pharmacy students were also included to evaluate their perceptions as to the value and significance of enterprise skills in pharmacy education.

The data collection methods applied in this research involved in-depth interviews. The data collection period lasted about a year and a half. In-depth interviews are considered a basic method to be applied in qualitative research (Easterby-Smith *et al.*, 1991). The social constructionism paradigm of this research views that peoples' knowledge, understandings, experiences, beliefs and opinions make up their social realities which this research aims to explore. The view of this research paradigm is supported by the unique advantage of in-depth interviews of providing exhaustive and comprehensive information which makes them useful for revealing new evidence about the research subject, and opening new directions for exploration. In-depth interviews also support the researcher's epistemological views in that purposeful and logical findings can be generated about ontological assumptions through interactive talks with others that involve asking, listening and making remarks about their explanations and expressions.

The principal objective of conducting interviews is to develop an understanding about certain concepts and their importance and relation to personal beliefs and values developed by respondents (Easterby-Smith *et al.*, 1991). These interviews are very helpful for the researcher to probe and understand the underlying perceptions of respondents over a relatively longer time frame (Reige, 2003; Denscombe, 1998). Consequently, they allow

the researcher more flexibility in introducing some alterations to the interview within the course of discussion (Denscombe, 1998). Thus, probing is utilised in interviews to make them more like conversations with a purpose (Burgess, 1984). This should support exploring this research objectives by helping participants verbalise, conceptualise and remember their experiences by allowing a great deal of spontaneity and adjustment during interaction with respondents, for example, through open-ended questions and unstructured interviews that allow respondents to use their own words and elaborate rather than simply answer by yes or no. In this study, the researcher aims to explore the understanding of the concept of enterprise education within pharmacy education, the extent of the need for developing pharmacy students' enterprise skills, and the specific contribution of experiential learning to this. Therefore, the perspectives, personal biographies and experiences of respondents were all considered.

From another aspect, in-depth interviews can have some disadvantages as the likelihood that interviewers might impose their views on interviewees in the way they ask questions or interpret responses. Therefore, it is very important for the interviewer to minimise any possibilities of bias as much as possible (Easterby-Smith *et al.*, 1991). Such minimisation is done in this research by reflecting on respondents' responses during interviews. This helped in reducing the possibilities of any errors or misinterpretations by the interviewer on one hand, and allowed respondents to re-consider their responses and perhaps, at times, elaborate more on them from the other. Furthermore, the reflective interviews conducted with employers and academics have helped in reducing any bias from the researcher by allowing the interviewees to reflect on the researcher's interpretations, as well as reflect on their own views and other respondents' views that concern them. Additionally, all questions were intentionally designed to be open-ended questions in order to allow respondents to elaborate on their experiences without being limited to variables introduced

by the researcher. The researcher's interventions during interviews were done only for purposes of clarification.

Furthermore, the level of respondents' knowledge and experience in the area of study can significantly affect the value of responses and, thus, the data obtained (Sekaran, 1984). Maruyama (1981) emphasised that the more the respondents are involved with the research topic the better the quality of responses. In this research, all respondents were involved within the pharmacy environment, whether they were employers in hospitals, retail or industry, or academics teaching pharmacy students in pharmacy schools, or students studying pharmacy courses.

The value of responses obtained can be also affected by the willingness of respondents to interact and collaborate with the researcher (Saunders *et al.*, 2009). Collaboration of interviewees in this research was obtained by seeking an informed consent from them to conduct the interviews. This was done by sending emails to potential interviewees that included a brief introduction about the researcher and the research study. After that they were requested to see if they could find 40 minutes to one hour to sit with the researcher at any time that suited them and to reply back with the suitable time. Those who did not reply back were not pushed to participate in the research in any way.

Arranging Interview Questions and the Degree of Structure in an Interview

Interviews can range from those that rely on indirect or open-ended questions to those that are built on a previously prepared list of questions that the researcher plans to ask (Easterby-Smith *et al.*, 1991). Literature describes three main approaches to collecting qualitative data through interviews; whichever approach is followed, determining the extent to which these interviews will be structured is an essential matter that must be planned by the researcher. The first type of interviews is the informal conversational

interviews where questions are generated spontaneously in the natural flow of communication. The skills of the interviewer play a main role in determining the quality of data obtained in this type of interviews. The second type of interviews involves a standardised list of open-ended questions that are worded and organised so that interviews with all respondents will follow these same questions with the same sequence. The third type of interviews is the semi-structured interviews, which is the one used in this research. Semi-structured interviews involve setting a general guideline for the interview that outlines the issues to be discussed and explored with each respondent in advance (Mason, 2002). This approach helps the researcher to approach and cover all important matters that are relevant to the research more successfully in the interviews (Easterby-Smith *et al.*, 1991), while at the same time offering flexibility to the researcher to develop and sequence questions in a way that goes with the flow of interaction and allows for extracting information in more depth (Jones, 1985; Patton, 2000). In fact, it is in the interest of the research study to get involved in the interview and probe so that the conversation remains focused and relevant to the research objectives (Easterby-Smith *et al.*, 1991).

In all the interviews conducted in this research, the researcher started with a clear introduction at the beginning describing the exact interest of the research in order to raise the awareness of respondents about the research topic and motivate them to engage in an interactive discussion. Interviews conducted with pharmacy employers in this research lasted between 15 to 30 minutes, interviews with pharmacy academics lasted between 30 to 75 minutes, except for one interview in which the interviewee did not show a lot of cooperation and the interview lasted only 12 minutes, while interviews with students lasted between 10 to 15 minutes. All interviews were conducted by the researcher and followed a semi-structured approach, where a general interview guideline of all the relevant questions and issues to be covered was prepared in advance. All interviews with pharmacy

academics and most interviews with pharmacy employers were tape recorded following consent from respondents and then transcribed to ensure that nothing important was deleted from the interviews. Some interviews with pharmacy employers were not recorded since these employers did not consent to that, these were written down by the researcher during the interviews.

The interviews in this research were organised in three main parts. According to Patton (2000), interviews had better start with general descriptive questions since these require the least amount of information recall and analysis. Probing is used to provide more detail and elaboration on activities or experiences described. After this the researcher can initiate opinions and feelings. The wording of questions is important since it affects the way an interviewee responds. It is important to point out that interviews are very suitable for exploring and understanding social processes and experiences (Mason, 2002), which makes situational questions that allow respondents to talk through their experiences better than abstract questions that focus on what they have in mind or might do. Situational questions aim to explore and evaluate what has actually taken place, therefore, during interviews, the researcher allowed respondents to explain freely and elaborate on educational approaches applied at their schools of pharmacy and their experiences in applying innovative learning activities that take place as part of the different experiential learning approaches. Hence, the second part of the interviews involved a discussion about the specific daily activities in which participants were involved and the strategies followed in implementing them. The last part of the interviews aimed to identify respondents' personal perspectives on how the application of experiential learning in academia can reflect on the performance of pharmacists in the professional work environment.

In this research, the researcher started initially by asking respondents to generally describe what is currently taking place. For example, employers were asked to describe the performance of recent graduates in the marketplace, and then to describe their opinions regarding the need for enterprise skills by graduates newly employed in the marketplace. Academics were initially asked to describe the general educational approaches followed at HEIs and the role of students in the educational process, they were also asked about the extent of awareness of the concepts of enterprise education and enterprise skills. After that, the researcher moved on to questions about academics' opinions and feelings regarding the learning activities applied, the cooperation between academics in applying and developing these activities, and the extent to which pharmacy schools support their implementation.

All the general guidelines prepared for the semi-structured interviews were prepared following a review of literature to ensure relevancy and purposefulness of the questions in regard to the research objectives. In other words, these guidelines were designed to address the research objectives. The following table (Table 4.3) provides a list of the research objectives and the corresponding interview questions designed to answer each of these objectives in both: employers' and academics' interviews. Nevertheless, it is important to point out that since semi-structured interviews were employed in this research, the questions described in the table below provided only a general guideline for the interviews, which outlined the issues to be discussed and explored with each respondent in order to cover all the relevant points, and did not provide a fixed structure for the flow of interview questions. Appendices 1 and 2 provide a list of the general guideline questions prepared for employers' and academics' interviews respectively.

To elaborate more, questions in interviews with employers, academics and students were targeted to explore Objectives One and Two of this research which aimed to establish the

nature and value of the contribution of HEIs in developing more enterprising pharmacy graduates, as well as determine the extent to which pharmacy schools in the UK HEIs embrace the concept of enterprise education. To achieve this, it was necessary to assess the value of enterprise skills for recent pharmacy graduates from the points of view of employers, academics and students, as well as to evaluate employers' extent of satisfaction about the level of skills demonstrated by recent graduates in the marketplace and whether they believed HEIs are performing their role sufficiently in this regard. Furthermore, it was important to link opinions of employers, academics and students regarding the extent to which they believed that developing graduate enterprise skills is a valuable inclusion in an undergraduate pharmacy degree, a personal responsibility of the students, and/or the responsibility of employers in the marketplace

Objectives Three and Four, on the other hand, which aimed to assess the significance of the contribution of experiential learning methods in the development of enterprise skills, as well as identify external barriers to developing pharmacy students' enterprise skills during HE, were predominantly explored through question in interviews with pharmacy academics. In this regard, the questions focused on assessing the extent to which pharmacy schools realise the concept and value of enterprise education and enterprise skills, and whether they are intentionally utilising experiential learning methods for the development of students' enterprise skills in a systematic and organised way. Additionally, questions to academics aimed to investigate the barriers facing pharmacy schools in applying experiential learning approaches and whether these barriers can be controlled by pharmacy schools.

Table 4.3.: Correlating the research objectives with interview questions

Objective	Questions designed to answer the objective	
	In employers' interviews*	In academics' interviews
Objective 1: To establish the nature and value of the contribution of HEIs in developing more enterprising pharmacy graduates	1, 3, 4, 5, 8	1, 12,13
Objective 2: To determine the extent to which pharmacy schools in the UK HEIs embrace the concept of enterprise education	6, 7	3, 4, 5, 6, 10
Objective 3: To assess the significance of contribution of experiential learning methods to the development of enterprise skills	NA**	2, 7, 8, 9, 11
Objective 4: To identify barriers to developing pharmacy students' enterprise skills during HE	NA	12

* Question (2) in the employers' interviews aimed to confirm whether respondents deal with pharmacy students, graduates or both.

** Not Applicable

Following the interviews with pharmacy employers and academics, the final stage of data collection in this research involved four interviews with pharmacy students. The interviews started with a general question asking students to describe and discuss the activities in which they were expected to engage during their studies. This was then followed by evaluating students' views and opinions about the need and value of generic transferable skills developed through the educational process and how the application of experiential learning activities has impacted the development of enterprise skills required in the workplace. At the end of the interviews, students were asked to describe whether they feel they are ready to meet the challenges of the real-world.

Consequently, data collection through in-depth interviews was very appropriate for this research. The aim of this research is to evaluate the extent to which HEIs appreciate and understand the value of enterprise education which aims to develop a range of students' enterprise skills in terms of generic transferable skills. In doing so, the research aims to explore the value of the contribution of experiential learning in pharmacy education, how it

is assessed and how it relates to the development of students' enterprise skills. This research also aims to evaluate the set of enterprise skills developed in pharmacy students through experiential learning, and how the need and value of these skills is perceived by pharmacy employers, academics and students. Therefore, applying in-depth interviews as the qualitative research method in this research was deemed the most appropriate.

4.5.3. DATA ANALYSIS

Extracting meaningful data from qualitative data has been described by Creswell (1994) as a diverse process that can happen in several ways. Deciding on the way of analysing data is affected by the research objectives and philosophy which provide a general framework for determining the themes, as well as the areas of comparison and interest. Data analysis will be carried out in this research study using Thematic Analysis (TA). TA is '*a method for identifying, analysing and reporting patterns (themes) within data*' (Braun and Clarke, 2006), which allows for interpreting different areas of a research study (Boyatzis, 1998). Despite being widely applied, TA has not received much attention in research (Boyatzis, 1998; Roulston, 2001), and there is no general agreement as to what it is or how it would be applied (e.g. Attride-Stirling, 2001, Boyatzis, 1998; Tuckett, 2005). Boyatzis (1998) and Ryan and Bernard (2000) characterised TA as a tool that is applied in various qualitative analytic methods and did not see it as a restricted approach, but rather as a means through which essential generic skills required in different qualitative analytic methods are applied. Nevertheless, Braun and Clarke (2006) argued that TA provides a flexible analytic approach in qualitative research analysis that takes thorough and comprehensive, yet complex, consideration of data; they further provided a clear description of what TA is and a systematic step-by-step guide for applying it, which has been applied in a number of research studies like the research by Blacker (2009) and

Thomas (2010). The analysis steps described by Braun and Clarke (2006) will also be applied in the analysis of the findings of this research.

Being a flexible method, TA provides a clear basis for defining the philosophy of a research study and, thus, can be applied in a number of qualitative research paradigms among which is the constructionist paradigm (Braun and Clarke, 2006). At the same time, TA offers an understandable analysis approach that does not require the researcher to have that solid theoretical and technical knowledge required in other approaches such as Grounded Theory and Interpretive Phenomenological Analysis (IPA) (Braun and Clarke, 2006). The latter point supported the researcher's choice of this analysis method provided that this is the researcher's first qualitative research experience.

Furthermore, in their paper, Braun and Clarke (2006) provided a series of issues that must be well-understood and clarified by the researcher in order to adapt TA to the theoretical position of the research and avoid the criticism of '*anything goes*' in qualitative data analysis (Antaki *et al.*, 2002). To start with, it is necessary to define some terminology that will be used in this analysis; the term '*data corpus*' refers to the entire data collected in this research, the term '*data set*' refers to the data taken from the corpus to be used in a certain analysis, the term '*data item*' is used to refer to a single piece of data collected from an interviewee in an interview, and lastly the term '*data extract*' is used to refer to data coded and extracted from a data item.

It is also important to define what a 'theme' is and how its pattern is decided. A theme is a capture of necessary aspects in data that the researcher finds to relate to research questions. A theme might be repeated many times in either or both a data item or across the data set, but more prevalence across the data set does not necessarily mean that a theme is of more importance as there is no specific value that defines themes' ratios in qualitative research,

nor a right or wrong approach in deciding their prevalence (Braun and Clarke, 2006). Braun and Clarke (2006) also added that repetition of a theme is not an indication of its 'keyness' which is basically dependent on the extent to which the theme sheds light on aspects that are relevant to the research questions; therefore, the authors argue that a researcher must maintain his/her flexibility and avoid rigidity in deciding themes, while maintaining a consistent approach that is clearly described and fits within the research philosophy. Furthermore, these views also match with the research paradigm which views that multiple realities could exist since different people could attach different meanings to the same phenomena and, thus, interpret them in different ways.

Instead of adopting an approach where a researcher would focus only on certain themes of interest within the data, the researcher adopted a more inductive approach in this research and was prepared to be surprised by the findings. This approach is referred to as a '*bottom up*' approach (Frith and Gleeson, 2004), where the themes extracted would be strongly relevant to the data itself (Patton, 1990). Accordingly, data coding was done without attempting to fit the findings into the researcher's own pre-conceptions or a previously prepared coding structure. Extracting themes from data was done to achieve a rich description of the data set in order to identify the predominant issues arising that are relevant to the research questions even in an indirect way. To support this point, Silverman (2000) stated that qualitative research methods usually result in extra data that are not needed for directly addressing the objectives of the research; nevertheless, when analysing the data, a researcher should keep in mind not to limit the analysis to the exact research questions of the study. Therefore, the coding process in this study took into consideration the codes that are not directly or apparently relevant to the research questions but are, however, important for pointing out certain differences or issues that are crucial for the findings of the research (Knight, 2002). So when carrying out the initial coding, all data

were included in the coding process; this required more time but allowed the researcher to become more involved with the data.

Furthermore, as this research applies a social constructionist qualitative paradigm, it is important to go beyond the level of identifying and categorising themes in an explicit manner, and go for identifying and analysing implicit ideas and assumptions. This is referred to as a latent TA approach, which was mentioned to emerge from a social constructionist paradigm (Burr, 1995). In this approach, developing themes would incorporate interpretative effort where the resulting analysis would be theorised rather than being merely descriptive (Braun and Clarke, 2006). This also matches with Gadamer's Hermeneutic Methodology adopted in this research which views that the researcher and the text engage together to reach points of common sense where 'fusion of horizons' is achieved. So in this research, besides explicitly describing the experiential learning approaches applied and the range of enterprise skills developed through them, the analysis went beyond that to analyse questions as how and why these approaches are applied, do the results achieved meet the market demands, what the underlying barriers are, how they could be overcome, how could improvements be introduced into the current pharmacy curricula and possibly more underlying questions as well.

The analysis approach described is deemed appropriate in this research because on the one hand the extent of significance of learning activities in developing enterprise skills is under-investigated, which means that developing a theoretical framework that could guide a comprehensive coding frame would be quite difficult. On the other hand, the research adopts a social constructionist paradigm which sees that there is no single universal truth or reality, but rather multiple truths depending on individual's perceptions and meanings

about their realities, which would make a more flexible analysis approach that is open to discovering new themes a more appropriate one.

The data analysis approach described in this section took into consideration the whole data set; such consideration is mentioned by Braun and Clarke (2006) to lead to some loss of depth and engagement in data analysis despite maintaining a rich and comprehensive description. However, to overcome the loss of some themes, themes believed to be strongly related to the research questions but have appeared in one or only few data items were taken into account. The researcher made it clear in the analysis that such themes are repeated in individual data items rather than across the whole data set, but are believed to add an important contribution. The decision to include these themes, however, was not done haphazardly. First of all, those themes had to be related to the research questions in some way. Secondly, the participant(s) felt strongly about them during the interviews through for example emphasising and repeating them, and/or associating them with strong non-verbal gestures. And thirdly, the participant(s) who discussed those themes had enough experience and/or credibility to support their views concerning the ideas reflected in those theme(s); this might be for example an experience or specialty in a certain area that gave them the opportunity to know or see valuable things that other participant do not.

Furthermore, as advised by Huberman and Miles (1998) and Knight (2002), several approaches are applied in order to avoid a short-sighted vision during the coding process of the data generated. During the coding process, notes were made regarding specific data that are not apparently matching with the research questions and relevant literature, the codes generated were also continuously checked against their thematic categories to ensure they fit within them. Furthermore, the coded transcripts were re-checked at separate times for appropriateness of the codes assigned to help in revising some of the previously

assigned codes. In other words, the data generated was not all handled at the same time, but rather put aside for some time during the analysis and attended to later for any inconsistencies or irregularities in setting codes or themes. Huberman and Miles (1998) and Knight (2002) also recommended re-visiting relevant literature repeatedly during analysis to develop codes and themes that help in pulling the data available together; however, there is no right or wrong way to proceed in this regard (Braun and Clarke, 2006). Engaging in literature can improve the level of analysis by sensitising the researcher to critical aspects in the data (Tuckett, 2005); on the other hand it has been argued that this engaging in literature can also limit the thinking of the researcher on certain features while drawing his/her attention away from other possibly critical ones (e.g. Braun and Clarke, 2006). In this research study, the researcher read a significant amount of relevant literature at the beginning of the study before starting the analysis, but did not engage in literature during the analysis process since adoption of a more inductive approach was desired, where new themes and critical aspects related to the research were allowed to emerge.

Despite this inductive approach, it is quite impossible to avoid the researcher's own theoretical pre-conceptions and role. Braun and Clarke (2006) commented that qualitative data cannot be coded in an '*epistemological vacuum*'. The researcher is aware of personal pre-conceptions and contribution to this study which have been referred to and discussed in detail in Section 4.4. However, the researcher's personal views were not imposed or applied in a coding frame; rather, themes were allowed to emerge from the data set, and any significant feedback that was seen relevant to the researcher's own pre-conceptions was considered.

The phases of thematic data analysis were done following the six-phase analysis guidelines described by Braun and Clarke (2006). These guidelines and their application are described next in the following section.

4.6. CARRYING OUT THE ANALYSIS

As mentioned in the previous section, the data analysis in this research followed the TA approach using the six-phase guidelines described by Braun and Clarke (2006). These steps are not meant as strict rules but rather as guidance that can be flexibly adapted to the research questions and findings (Patton, 1990). TA involves the researcher moving back and forth between the analysis phases rather than having them applied in systematic steps, thus, allowing analysis to build over time. These steps are listed in Table 4.4.

Table 4.4.: Phases of thematic analysis

Phase	Description of the process
1. Familiarising yourself with your data:	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
2. Generating initial codes:	Coding interesting features of the data in a systematic fashion across the entire data set, collating data relevant to each code.
3. Searching for themes:	Collating codes into potential themes, gathering all data relevant to each potential theme.
4. Reviewing themes:	Checking if the themes work in relation to the coded extracts (Level 1) and the entire data set (Level 2), generating a thematic ‘map’ of the analysis.
5. Defining and naming themes:	On-going analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
6. Producing the report:	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and literature, producing a scholarly report of the analysis.

Source: Reproduced from Braun and Clarke (2006, p.87).

Phase one: Becoming familiar with the data

The data collected by the researcher through interviews allowed the researcher to become immersed in the data and develop initial interests and ideas from the start of the data collection process. Furthermore, the data were transcribed by the researcher personally by listening to the conversations' recordings several times and typing them, which developed the researcher's orientation about the depth and breadth of the data contents (Riessman, 1993); Bird (2005) argued that such transcribing of data is an essential stage in interpretative qualitative data analysis. Furthermore, Lapadat and Lindsay (1999) described transcription as an 'interpretative act' that does not merely mean listening to recordings and writing the words down, but rather a process of creating meanings. The transcription took account of all verbal speech. Non-verbal utterances were not included as this level of detail is not required in this research study analysis. After finishing the transcriptions, the researcher read them once more before starting the coding process to develop better understanding of possible patterns, and a more holistic view of all aspects of the data. Some general points were made and ideas pointed out to guide the formal coding process. Due to the large number of interviews conducted in this research, this first phase of data analysis took around four to five months to complete; however, it is an essential phase that provided a basis for the following analysis stages, so it was important not to skip any part of it (Braun and Clarke, 2006).

Phase two: Generating initial codes

At this stage, the researcher started to produce initial codes by identifying interesting aspects in the data set. This involved working through the whole data set by examining each data item carefully and systematically. Since this process involves arranging the data into consequential groups (Tuckett, 2005), it is considered as part of the analysis (Miles and Huberman, 1994). This phase has set a basis for developing the broader and more general themes in the next phase, where more interpretation is put into the analysis.

The coding process was carried out manually. The researcher ensured coding all data extracts and grouping them within each code by copying them on a computer file, taking into consideration that certain extracts were coded more than once. At this stage extracts were coded for all possible patterns since the approach to data analysis was inductive and the researcher was not sure what might turn out to be an interesting theme later on.

Phase three: Searching for themes

At this stage, the analysis was moved to the higher level of themes where possible related codes were collated into themes along with all the relevant data extracts. Mind-maps were used at this stage to help in seeing how the different codes may fall under a certain theme, realising that some codes may stand as themes by themselves while others may become sub-themes or even be discarded. Accordingly, more sense about the importance of themes was developed and the researcher moved on to the fourth phase of analysis.

Phase four: Reviewing themes

At this stage, the researcher started refining the themes by considering that some themes needed to be merged together, while some needed to be broken down into more themes and others needed to be discarded as there is not enough or consistent extracts supporting them. To do this, all the extracts grouped under each theme were reviewed to see if they reflected coherent patterns, or whether there were any problems in these extracts or possibly the themes they fell under. Once satisfied by the themes and sub-themes produced, the researcher evaluated them in relation to the whole data set to see if they actually provided an accurate reflection of the meanings provided in the entire data set. Refinements were carried out at this phase until no significant changes yielded, while realising that this process of coding and generating themes had to be stopped at a certain stage as it could go on endlessly.

Phase five: Defining and naming themes

Once a satisfactory thematic map was generated, this phase was initiated where a more thorough investigation of the themes was carried out by analysing the underlying meaning under each theme and under all themes as a whole in order to understand the aspects of data involved under them. To achieve this, the extracts under themes were organised in a coherent and consistent way and associated with description and analysis. The researcher was careful at this stage to find out what was interesting about the extracts and what ideas were reflected in them in order to avoid having them simply paraphrased in the analysis. This was important since, as explained earlier, the social constructionism paradigm adopted in this research requires the researcher to put an effort into the interpretation process and go beyond the level of identifying and categorising themes in an explicit manner to recognising the underlying indirect ideas and assumptions.

Furthermore, the researcher continuously went over findings and analysis to make sure that the whole picture was consistent and coherent; this involved evaluating themes themselves and how they related to each other, and whether there were any overlaps between themes or themes that needed to be broken-down into sub-themes.

Consequently, the analysis resulted in the identification of four main themes, these included:

Theme One: Enterprise Skills in the Pharmacy Context

Theme Two: Application of Experiential Learning Methods at Pharmacy Schools in the UK

Theme Three: Utilising Experiential Learning for Education 'into' Enterprise at Pharmacy Schools in the UK

Theme Four: Academics' Explanations/ Justifications for the Low Level of Graduate Enterprise Skills in the Pharmacy Context

Each of these themes included a number of relevant sub-themes and sometimes sub-sub-themes under them; these are included in the following Table 4.5 which summarises the sub-themes and sub-sub-themes under each of the four main themes. Furthermore, detailed flowcharts of each

theme and its relevant sub-themes and sub-sub-themes are included at the introduction of each theme's relevant analysis chapter, including Chapters 5, 6, 7 and 8, for Themes One, Two, Three and Four respectively.

As for the data extracts included under each of the themes, these were organised in tables, and examples of these data extracts are included in Appendices 3, 4, 5 and 6 for data extracts identified under Themes One, Two, Three and Four respectively. Data extracts from employers' interviews were identified with the relevant employer's reference symbol as indicated in Table 4.1, while data extracts from reflective interviews with employers included the letters (RI) at the end of each symbol, so for example E5(R)RI is used to indicate data extracts from the reflective interview with employer number 5 who works in retail, and E10(H)RI is used to indicate data extracts from the reflective interview with employer number 10 who works in hospitals. Data extracts from academics' interviews were identified with the relevant academic's reference symbol as indicated in Table 4.2, while data extracts from reflective interviews with academics included the letters (RI) at the end of each symbol, so for example A1(S)RI is used to indicate data extracts from the reflective interview with academic number 1 who teaches science-related courses, and A5(P)RI is used to indicate data extracts from the reflective interview with academic number 5 who teaches practice-related courses. As for the data extracts from students' interviews, these were identified as S1, S2 and so on referring to student 1, student 2 and so on.

Table 4.5.: The four main themes and their relevant sub-themes and sub-sub-themes

Themes	Sub-themes	Sub-sub-themes
1. Enterprise skills in the pharmacy context	1.1: Are enterprise skills important for pharmacists?	
	1.2: Who is responsible for developing enterprise skills?	1.2.1: Employers' views 1.2.2: Academics' views
	1.3: The level of skills demonstrated by recent pharmacy graduates	1.3.1: Employers' views 1.3.2: Academics' views
		1.4.1: Employers' views 1.4.2: Academics' views 1.4.3: Students' views
	1.4: The value of enterprise skills for pharmacy students	
2. Application of experiential learning methods at pharmacy schools in the UK	2.1: How do pharmacy schools view experiential learning?	
	2.2: What Sort of Learning Activities do Pharmacy Students Engage in?	
	2.3: To what extent are experiential learning approaches supported at pharmacy schools?	2.3.1: Does teaching at pharmacy schools follow a more didactic or a more innovative approach in general? 2.3.2: Do pharmacy schools encourage academics to embed experiential learning approaches in curricula?
	2.4: Issues influencing the implementation of experiential learning activities at pharmacy schools	
3. Utilising experiential learning for education 'into' enterprise at pharmacy schools in the UK	3.1: Do pharmacy academics realise the value of learning activities embedded within curricula in the development of skills?	
	3.2: The importance of science in pharmacy education and a pharmacist's career	
	3.3: Reasons and issues behind the weak linking between science-related and practice-related courses	
	3.4: How can experiential learning activities be utilised to overcome the weak linking between science and practice, and lead to better development of skills	3.4.1: How are pharmacy schools working toward achieving integration between the science and practice courses?
	3.5: Do the experiential learning activities embedded in pharmacy curricula aim to develop students' enterprise skills intentionally?	
4. Academics' explanations/ justifications for the low level of graduate enterprise skills in the pharmacy context	4.1: The educational process aims to equip pharmacists with general skills required by recent graduates	
	4.2: The way pharmacists develop their skills and demonstrate them varies in different contexts	
	4.3: lack of sufficient joint efforts between pharmacy schools and the real-world	
	4.4: The pre-registration year and the four-year educational process at HEIs do not link together	
	4.5: The role reflected by retail pharmacist is different from the professional role taught by the educational process	
	4.6: The uncontrolled growing influence of multiples that is turning the profession to become primarily business-oriented	
	4.7: Lack of sufficient government support to control the job description of pharmacists	

To articulate more on the themes covered in each set of interviews, Theme One emerged from careful studying of interviews with employers, academics and students. Here, views of employers and academics were important for identifying and exploring the four sub-themes

under Theme One, while interviews with students were important for identifying and exploring the fourth sub-theme under Theme One.

Theme Two also emerged from careful studying of interviews with employers, academics and students. Here, views of academics were important for identifying and exploring the four sub-themes under Theme Two, interviews with employers were important for identifying and exploring the fourth sub-theme under Theme Two, while interviews with students were important for identifying and exploring the second sub-theme under Theme Two.

Theme Three emerged from careful studying of interviews with employers and academics. Here, views of academics were important for identifying and exploring the five sub-themes under Theme Three, while interviews with employers were important for identifying and exploring the second and third sub-themes under Theme Three.

As for Theme Four, it primarily emerged from careful studying of interviews with academics, which were important for identifying and exploring the seven sub-themes under Theme Four.

As for the themes and codes explored in reflective vs. original interviews, it is important to point out here that the reflective interviews did not result in the emergence of new themes, but rather helped in the confirmation of certain conclusions and ideas that were derived from the original interviews, which were consequently essential for confirming a number of themes. Here, reflective interviews with employers were important to confirm employers' views regarding the low level of enterprise skills demonstrated by graduates and the role of HEIs in this regard. Reflective interviews with employers were also valuable in confirming the importance of real-life experience and having the support of real-world organisations, especially in terms of funding and supporting students' placements, in developing graduates' enterprise skills. Furthermore, the importance of scientific knowledge in a pharmacist's career, having the necessary enterprise

skills including a number of management skills, alongside some issues that need re-structuring in the pharmacy retail sector were also among the issues confirmed in the reflective interviews with employers. These issues will be discussed in more detail in the Analysis and Discussion Chapters later on.

As for the reflective interviews with academics, these were useful for confirming how experiential learning approaches are applied at pharmacy schools, whether they are used to develop graduates' skills intentionally or unintentionally, and the importance of utilizing these approaches for providing students with an integrated learning experience that helps them relate the science to practice, as well as realise the practical application of what they learn. Furthermore, reflective interviews with academics were important for confirming factors that are uncontrollable by HEIs, but can impede the development of graduates' enterprise skills. These issues will be discussed in more detail in the Analysis and Discussion Chapters later on.

Phase six: Producing the report

This phase involved the writing up of the analysis in a convincing and coherent way that reflect the value and validity of analysis. This entailed providing a logical and concise analysis and avoiding any unnecessary repetitions or complexity in extracts included. The meanings reflected in extracts were embedded in the analysis, which went beyond mere description of the data to making arguments that are relevant to research questions.

In this regard, the analysis was included in four main chapters including Chapters 5, 6, 7 and 8. Each of these chapters discusses one of the four main themes and its underlying sub-themes and sub-sub-themes.

4.7. ETHICAL CONSIDERATIONS

Ethical considerations in a research study relate to application of moral values to avoid any harmful or dishonest behaviour toward others, and ensure that participants are given respect in the research process (Opie, 2004). Such ethical considerations take place at various stages of the research process (Punch, 2005). This section describes the ethical considerations applied at the initial, intermediary and final stages of this research process.

Opie (2004) emphasised the importance of considering the value of a research project as an essential part of ethical considerations. The aim of this research was to explore the extent to which experiential learning is of value in developing the enterprise skills of pharmacy students in the UK HEIs. The findings of this research are expected to help pharmacy academics in HEIs understand better the value of developing enterprise skills for pharmacy students during the educational process and how experiential learning can contribute to the building of these skills. The research should add more understanding to the learning activities applied as part of experiential learning, and also help academics adopt a range of good practices in teaching, which should hopefully increase the benefit of applying experiential learning in pharmacy education by using it as a means for developing more skilled pharmacists who are more capable of handling the needs of the dynamic marketplace.

When interviewees were contacted, each one was sent a brief description of this research and its aim. Contacts were requested to set a time at their own convenience to meet and discuss this research issues. Such issues are seen as important ethical considerations as stated by Punch (2005). Those who did not reply with an informed consent were not contacted again or urged to participate. All interviews were also started with a general introduction about the research and its benefits. Several respondents commented that they were happy to take part in this research and would be interested in sharing its findings once completed, some academics and employers

offered to participate in the reflective interviews, and some academics even offered to help in arranging interviews with students at their schools which they saw would be beneficial for their students. This is important from the perspective that establishing mutual benefit and having participants' willingness to invest their time in supporting a research study supports the researcher's consideration of ethical issues in the research (Punch, 2005).

In accordance with Pring (2000), participants were also given the opportunity to confirm the researcher's interpretation of data through the reflective interviews conducted with pharmacy employers and academics. These interviewed also offered participants a chance to provide more suggestions and reflections.

According to Patton (2000), researchers have a responsibility to protect the identities of interviewees in a research. Therefore, in the transcripts of interviews participants' names were removed. All data were saved on the researcher's PC which is accessible with a private password. In the writing up of the research, the names of pharmacy academics, employers and students who participated in the research was listed alongside the names of their HEIs or organisations, however no identifying information was provided in the transcripts, data analysis, discussion or conclusions of the research. In the Analysis Chapter, employers are referred to as E1, E2, E3 and so on, with symbols of (R), (H) or (I) to indicate whether they work in the retail, hospital or industry sector respectively, academics are referred to as A1, A2, A3 and so on, with symbols of (S) or (P) to indicate whether they teach science or practice-related courses respectively, while students are referred to as S1, S2, S3 and so on.

4.8. TRUSTWORTHINESS AND RIGOUR

One of the main advantages of qualitative research is that it enables a detailed and holistic investigation of a phenomenon within its context (Punch, 2005). According to Punch (2005) the trustworthiness of a research can be established through the approaches and actions made in the

study, and in order to achieve that a researcher must establish how the data were collected and how knowledge was built up in a research study. Lincoln and Guba (1985) suggested four criteria to establish rigour of qualitative research formally; these criteria have earned significant importance in social science and occupational therapy specifically. The criteria were suggested to correspond to the criteria used to establish the trustworthiness and rigour in a quantitative research which include internal validity, external validity, reliability and objectivity. In the context of qualitative research, Lincoln and Guba (1985) suggested credibility to replace the internal validity, transferability to replace external validity, dependability to replace reliability and confirmability to replace objectivity. The following sections describe the criteria for establishing the trustworthiness and rigour in qualitative research and explain how they apply to this study.

4.8.1. CREDIBILITY

This criterion was suggested to replace the internal validity criterion applied in quantitative research, which is used to demonstrate confidence in the ‘truth’ of findings. From their perspective, Lincoln and Guba (1985) suggested this criterion to reflect the extent to which findings make sense, or in other words the extent to which findings are matching or compatible with reality. They both agreed that this criterion is one of the most significant criteria for establishing trustworthiness. It is important to point out here that –as in any social constructionist research– there are no defined ways of reaching ultimate truth (Rolfe, 2001; Hughes and Sharrock, 1997) since different interviewees will have different views about what is true in their realities and all these views could be of importance (Rolfe, 2001; Natoli, 1997).

Nevertheless, there are several ways available to establish the credibility of research methods and findings. One way is through tape recording interviews to aid in providing rich and comprehensive data analysis and interpretation (Silverman, 2000). Audio taping

provides accurate evidence of the interview and the conversation can be repeated as many times as needed to get a comprehensive evaluation of the data, after that the interviews can be transcribed up to the level needed for the research (Mason, 2002). In this research, all interviews with pharmacy academics and most interviews with pharmacy employers were tape recorded, listened to more than once and transcribed by the researcher to ensure that nothing important was missed; pauses and gestures were not included in transcriptions since the purpose of the study was to explore social realities as highlighted in Section 4.3. In the data analysis Chapters 5, 6, 7 and 8, examples of participants' extracts are included to provide clear and honest examples of their accounts, and to support the researcher's interpretation of data.

In addition, credibility is built up through prolonged engagements with respondents within the study context (Lincoln and Guba, 1985). The data collection process in this research lasted for about a year and a half. Such a prolonged period of interactions with interviewees helped in establishing interactive conversations and informal relationships with participants; it also enabled gaining a more comprehensive and holistic view. Furthermore, probing was used throughout the interviews to ensure the researcher understood the participant correctly; this also allowed participants a chance to elaborate more on their answers.

From another perspective, Yin (2003) emphasised the need to adopt well established research methods that are compatible with the research study. This research adopted in-depth interviews with employers, academics and students, as well as reflective in-depth interviews with employers and academics, which enabled gaining different perspectives about enterprise education and the development of enterprise skills. The logic behind

combining different groups of respondents in data collection is that it is not possible for a single group to solve and explore comprehensively the issue of the research.

Application of reflective interviews with employers and academics helped in ensuring that the initial views and perceptions, which they reflected in the first interviews conducted with them, are brought back to them with the feedback of other concerned parties. More specifically, the reflective interviews allowed participants to reflect again on their initial views and other respondents' views as well. As stated by Yin (2003) this application of multiple approaches for data collection should help in reducing the intrinsic bias that usually increases with the application of single-methods.

It is important to mention here that when respondents were approached in this research, the researcher made sure to allow them a chance to refuse participating in the research as a way to help in ensuring honesty of respondents and including only those who really want to take part and offer their opinions (Shenton, 2003). This was done basically by sending emails to selected possible respondents and providing them with a brief about the researcher and the research topic in addition to the researcher's contact data so they could arrange for a meeting time at their convenience. Only those who replied back and showed interest in taking part in the research were interviewed. During interviews, the general framework of questions was arranged to ensure that respondents felt comfortable and accordingly spoke openly about the various issues discussed (this is explained in detail in Sub-Section 3.3.3 about data collection).

Among other issues that support the credibility of this research is sampling. Even though purposive sampling was applied, the researcher did not intentionally seek to limit the academics' sample to those who are known to apply experiential learning or those who work in HEIs known to apply experiential learning. According to Bouma and Atkinson

(1995), this should help in providing more assurance that the selected sample is representative of the larger population. This approach is also supported by Preece (1994) who mentioned that this could help in uncovering ‘unknown influences’ that may exist; this is important, especially that the learning activities studied in this research can be endless, and might take place as part several experiential learning approaches.

It is important to point out that the researcher’s background, qualifications and experience are of importance in qualitative research and can add to establishing its credibility since the researcher is the main tool of data collection and analysis (Patton, 2000). Alkin *et al.* (1979) supported this and added that this factor can be as important as the methods themselves. Including biographical information about the researcher is a matter of debate, but according to Maykut and Morehouse (1994) this information should be made explicit. These issues have been discussed in detail in Section 4.4 about the researcher’s role in this study.

4.8.2. TRANSFERABILITY

Transferability corresponds to the external validity criterion applied in quantitative research. External validity is concerned with the degree to which the results of one research are applicable to other situations, which is often demonstrated in positivists’ work by showing how the results are applicable to the larger population (Merriam, 1998). In qualitative research, transferability is equivalent to generalisability (Punch, 2005), and refers to the degree to which findings of a research study can be applied in other contexts. This is a very critical issue since findings in qualitative research are usually limited to a small number of individuals and contexts, which has lead several researchers to the belief that it is never possible to generalise the findings of naturalistic research since all views, opinions and observations are limited to specific contexts (Erlandson *et al.*, 1993). This,

however, was opposed by other researchers such as Stake (2000) and Denscombe (1998) who supported the concept of transferability and saw that even though each case is specific in certain ways, it still offers a representative example of a larger group. Yet, the concept of transferability has to be approached carefully due to the fact that contextual factors can have a significant influence that should not be underestimated (Gomm *et al.*, 2000), and it falls upon the researcher to provide enough contextual information to convey the boundaries of the research and support the fieldwork to provide assurance of transferability of the findings (Lincoln and Guba, 1985; Firestone, 1993). Such contextual considerations are discussed in detail in Chapter 1.4 about the context of this research study.

Cole and Gardner (1979), Marchionini and Teague (1987), and Pitts (1994) emphasised the need to consider certain aspects of the research to establish transferability of its findings. In this research, these aspects are considered in the number and the characteristics of respondents who participated in the interviews, as well as the number, ranking and geographic distribution of the HEIs from which the pharmacy academics' sample was chosen. Also, aspects regarding the number and length of interviews conducted, and the time period over which the data collection process took place are among the issues that support the transferability of these research data. All these aspects are described in detail in this research design in Section 4.5.

4.8.3. *DEPENDABILITY*

According to Knight (2002), dependability assessment in qualitative research determines whether this research would produce replicate findings in case the study was repeated with similar subjects and in a similar context. Demonstrating strong credibility of a research contributes to establishing its dependability to some extent as emphasised by

Lincoln and Guba (1985), which may be achieved through several approaches discussed earlier in this section under the credibility of this research.

In order to address the dependability of this research more specifically, the processes carried out during this research are reported in detail along with the rationale for decisions made at any stage. This includes a detailed explanation of the research design and its implementation including details of what was done in the fieldwork. According to Shenton (2003), such detailed explanations should enable any other researcher to fully understand the methods applied and their effectiveness, and accordingly repeat the work with a high possibility of gaining the same results.

Furthermore, awareness of the researcher's role in a research study, including acknowledgement of own assumptions, prejudices and interpretations in a reflexive manner, has been mentioned to maintain the flexibility of a research study in a way that could improve the research dependability (Etherington, 2004; Johnson *et al.*, 2001; Lincoln and Guba, 1985). The researcher's role and contribution to this study have been acknowledged and discussed in detail in Section 4.4. The 'bottom up' analysis approach employed in data analysis (discussed in detail in Sub-Section 4.5.3) also helped in minimising personal biases in this research by avoiding fitting the findings into the researcher's own pre-conceptions or a previously prepared coding structure.

4.8.4. CONFIRMABILITY

The confirmability of a research has been described by Lincoln and Guba (2003) as the degree to which it can be established that the findings of the research do not reflect biases, motivations, interests and viewpoints of the researcher. Miles and Huberman (1994) viewed this criterion as the degree to which a researcher confesses his or her own predispositions. In other words, confirmability of qualitative research can be reflected in

its objectivity, which is basically established by ensuring, as much as possible, that the findings of the research are the results of the experiences and opinions of the respondents and not the preferences and perceptions of the researcher (Shenton, 2003). However, it must be recognised that even after taking measures to minimise the influence of the researcher's biases on the findings of the study, Lincoln and Guba (2003) argue that it is not possible to reach complete objectivity in social research.

Confirmability in this research is demonstrated through the explanations provided regarding the beliefs underpinning the decisions made and methods employed. Also, almost all interviews were recorded to ensure that the transcripts provide an exact representation of the respondent's views with no additions or deletions from the researcher's side. Furthermore, the reflective interviews conducted added to the confirmability of the findings since they allowed the researcher to confirm the data collected by discussing it again with the concerned parties who were also given a second chance to review their initial views and opinions and reflect on them.

Additionally, the data analysis in this research is conducted in an inductive manner where a 'bottom up' analysis approach is employed (discussed in detail in Sub-Section 4.5.3). This should further help in minimising the researcher's personal biases in this research by avoiding fitting the findings into personal pre-conceptions or previously prepared coding structures as explained earlier.

4.9. CONCLUSION

This chapter has provided a detailed description of the methodology applied in this research to evaluate the extent to which HEIs appreciate and understand the value of enterprise education which aims to develop a range of students' enterprise skills, and explore the value of the contribution of experiential learning in developing those enterprise skills for pharmacy

students in the UK HEIs. The chapter detailed the research paradigm and philosophy adopted in this research, and then moved on to explain the research design in a manner that related this design to the adopted philosophies. Here, the chapter pointed out the main groups and sub-groups of respondents to emphasise the variety of characteristics considered in selection of the sample of respondents, and possibly point out some major differences in their views even though this is not meant as an intended objective of this research. Furthermore, the chapter pointed out the ethical considerations of this research and the measures taken to increase its rigour and trustworthiness. The following chapters will include a detailed presentation of the findings of this study as attained from pharmacy employers, academics and students who participated in this research.

CHAPTER FIVE: DATA ANALYSIS

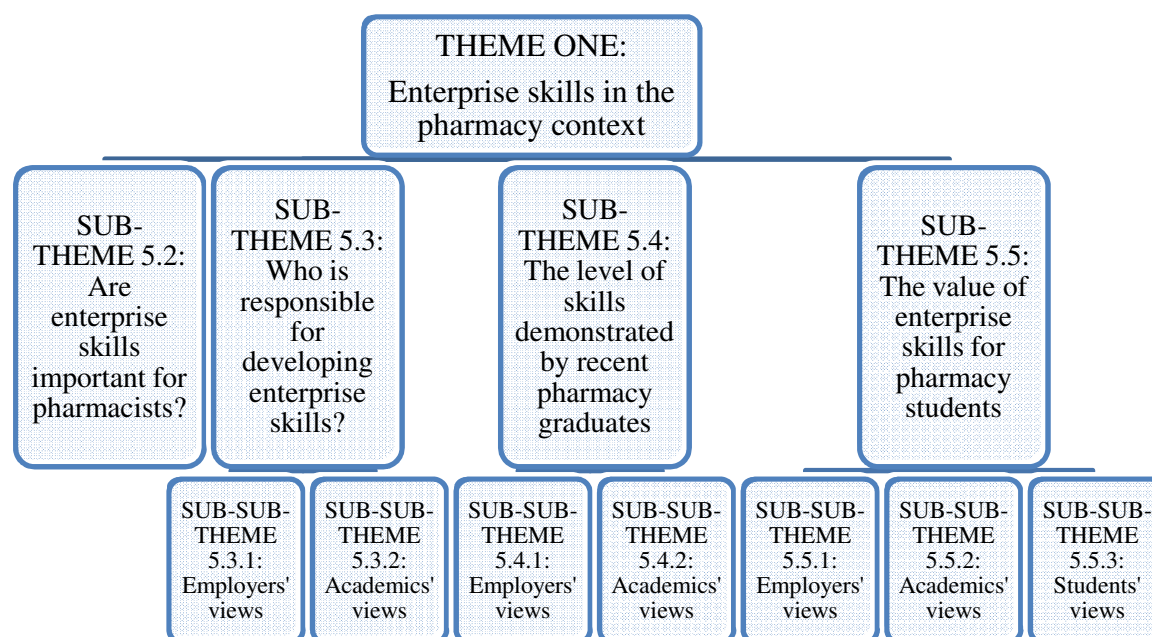
ANALYSIS OF THEME ONE: ENTERPRISE SKILLS IN THE PHARMACY CONTEXT

5.1. INTRODUCTION

A pharmacist's career is a very challenging one; from one aspect it is always centred around patient care and health, and from another aspect the career options available for a pharmacist are wide and various. A pharmacist could work in retail, hospitals, industry, academia or research, and each of these options has its own requirements, needs and challenges, but yet all share the common interest of having patient care and health as a priority.

This chapter discusses the first theme in the analysis of this research, which is about enterprise skills in the pharmacy context. The analysis considers the perspectives of employers and academics regarding the value of enterprise skills for pharmacists and does so under four main sub-themes included in the thematic flowchart in Figure 5.1, where each of these sub-themes is discussed next in detail.

Figure 5.1.: Thematic flowchart for Theme One.



5.2. ARE ENTERPRISE SKILLS IMPORTANT FOR PHARMACISTS? THE IMPORTANCE OF ABILITY OF PHARMACISTS TO DEMONSTRATE ENTERPRISE SKILLS IN THE MARKETPLACE.

There is a general agreement among interviewees that –as in any other profession– enterprise skills are necessary for pharmacists. This was clear in the comments of employers from retail, hospital and industry sectors, and all academics at the various HEIs included in the sample. Respondents pointed out the significance of enterprise skills in a pharmacist’s career regardless of the career path he/she chooses. To further demonstrate this importance a table of enterprise skills was given to employers requesting them to rank the importance of each skill for a recent pharmacy graduate. The same table was given to academics requesting them to rank the extent to which their pharmacy schools work toward developing these skills in their graduates, which helped in formulating a general idea as to whether academics and

employers agree on the importance of these skills and whether HEIs actually work toward developing them.

The skills were ranked rather highly by employers; employers mentioned that HEIs could contribute to developing more knowledgeable pharmacists but that does not necessarily mean they would be good pharmacists. Therefore, many employers considered enterprise skills to be as important as knowledge in a pharmacist's career, and added that pharmacists nowadays should be actively engaged with patients and other health professionals as they are exposed to critical real-life situations from the moment they start their careers, which makes developing their enterprise skills essential.

E4(R): *'... Pharmacists should be able to take on a leadership role, be confident and know how to serve and help the communities in which they work'*.

E12(I): *'We don't want pharmacists who refer to their managers about every small issue. We want pharmacists who can assess different problems, think about them, come up with solutions, and then come to their managers to discuss these solutions and offer their suggestions'*.

Academics also agreed that enterprise skills are important in a pharmacist's career. Academics were provided with the same list of enterprise skills given to employers and asked to rank the extent to which they believed these skills are developed through the educational process, where it was obvious from the rankings provided that pharmacy schools do work toward developing those skills in students. The ranking provided by academics were associated with some supporting comments as:

A1(S): *'The whole point in pharmacy is not going out with a whole lot of knowledge; it's also having the skills to be able to identify what to do'*.

A5(P)RI: *'...what we actually need is the skills to be able to apply that knowledge in real-life, the knowledge is important but it's kind of foundational knowledge that you need to build on and know how to apply, and be able to access that knowledge and understand it through having those skills'*.

It is worth mentioning here that the list of skills provided to employers and academics helped them better understand which skills the researcher is referring to, especially that the concept of enterprise skills was not very familiar to them, as will be explained in Section 7.2. But it also appeared during the interviews that interviewees were not very comfortable with this ranking question. They all emphasised that all the listed skills are important, and relatively high ranks in general were given by respondents except for two academics who preferred to discuss these skills without ranking them. However, the information provided by respondents during discussions and open-ended questions were far more indicative and reliable. Therefore, the ranking data were useful to indicate that enterprise skills are important for pharmacists in all career sectors and that there are efforts done by pharmacy schools to develop them. Those rankings however were not used to provide any statistical evidence or information about the relative importance of each skill.

In this context of the importance of enterprise skills for pharmacists, academics talked about the image of the pharmacy profession, and mentioned that this image today is not as bright as it used to be in the past and definitely not as bright as it should be. Academics talked about the importance of having capable pharmacist and not just knowledgeable ones, and the importance of focusing the educational process to define exactly what pharmacists are here for, especially that nowadays a lot of pharmacists do not understand their roles or how their profession is unique in the marketplace.

A1(S): *'...I don't know whether the pharmacy got lost a little bit? I don't think it's a profession where we've got much of a mission statement; and we don't know exactly what we're here for?!'.*

A5(P)RI: *'...certainly some pharmacists are not performing the role of pharmacists... I think we are trying to develop pharmacists for roles that we aspire and perhaps are not available as they should at the time being, I guess we want to see pharmacists who can develop the profession and who have the skills necessary for pharmacists...'.*

Academics also added that in light of the growing need for enterprise skills by pharmacists, the development of those skills through the educational process is increasingly becoming emphasised by the RPSGB, where the development of a range of skills including enterprise skills through the educational process is being addressed.

A5(P): 'I think it's all changing with the new standards for pharmacy education and it will definitely be much more around skills and competencies, and to be able to show they have the confidence to do something. So we help to kind of gear them up to these types of standards'.

A1(S)RI: 'The council is going pretty much into skills necessary to be a good pharmacist... moved away from the student must KNOW all this and that... and moved to a more skill-based approach... We're trying to re-emerge as a profession and applying those would hopefully make better pharmacists'.

From an employment point of view, employers said that being able to demonstrate a good level of enterprise skills by recent graduates would give them a competitive edge and help them start their careers more efficiently instead of struggling for a few months, or years sometimes, before clearly realising their roles. Employers also mentioned that evaluation of graduates' ability to demonstrate skills is part of the evaluation process when it comes to hiring them for a job, where the better their ability to demonstrate skills the higher their chances of getting employed. Employers mentioned that 15-20 years ago there was not much focus on these skills as the number of pharmacists was quite low and there was less competition. However, nowadays there is a growing interest in these skills as the number of pharmacists and competition increases, but this should never be at the expense of knowledge since both are very important.

E1(R): '...if they hire someone nowadays I think the skills would be important yes, but when I was hired 15 years ago it wasn't so important...'.

E2(R): 'When I interview someone for a job I try to evaluate both the knowledge and skills. I hope to find the necessary skills in pharmacists who can cope with situations, have people skills and management skills'.

The importance of skills was evident in interviews with employers from retail, hospitals and industry sectors. There were no major differences in the range of skills needed by each sector since all skills showed to be important. However, there are certain skills that seemed to be focused on slightly more in each sector; but since the purpose of this research is not to compare between the different sectors of pharmacy, the following examples of skills needed in each sector of pharmacy can be used as indicative but not as decisive results.

The importance of knowledge was very evident in the interviews with hospital pharmacists who emphasised the need for in-depth knowledge about drugs, but they also emphasised skills like confidence, resourcefulness, ability to work in teams, organising and prioritising tasks, interaction, delegation, problem-solving, confidence and communication.

E6(R): ‘...in hospitals, I believe pharmacists are expected to do ward rounds where they should establish trust and good communication with patients, and be able to talk to and convince physicians who happen to have limited knowledge about drugs and are mainly responsible for diagnosing a disease, whereas prescribing decisions should be left for a pharmacist’.

E9(H): ‘I think hospitals are different from retail, I think in retail you need more practical skills. In hospitals it is more about clinical knowledge...’.

Retail pharmacists focused largely on the importance of communication skills in the employment process, even for pre-registration students. Retail employers saw communication skills as essential to provide safe patient care; for example pharmacists must be absolutely sure about any message they receive from a customer and absolutely sure that the customer receives the right feedback from them, especially when it comes to sensitive issues or names of medications that might sound similar for some people, as well as when dealing with non-native speakers of English. Besides communication, retail employers also focused on skills like management skills, customer care, confidence, responsibility, team skills, assertiveness and, flexibility.

E2(R): *'...I have worked in hospitals as well and it's a bit different there; I guess pharmacists there need to have more knowledge and more skills...'*

E4(R): *'...in retail for example communication skills are very important; you don't want a pharmacist with a bad attitude in a pharmacy for example'*

Employers from industry on the other hand seemed to be largely interested in skills like problem-solving, self-learning, responsibility, analytical skills, numeracy and confidence; they also looked at skills as leadership, decision-making, ability to handle tasks and emergency situations, prioritisation and communication skills. Following are some of the employers' comments when asked if they would consider evaluating enterprise skills for pharmacists applying for a job.

E12(I): *'Yes, definitely. You don't want an employee who is shy and lacks the confidence... it is important for pharmacists to have a strong character and skills to deal with the various emergencies we deal with every day, and be able to set priorities and action plans'*

5.3. WHO IS RESPONSIBLE FOR DEVELOPING PHARMACISTS' ENTERPRISE SKILLS?

5.3.1. EMPLOYERS' PERSPECTIVES

All employers from the various sectors of pharmacy employment agreed that the importance of real-life experience in developing enterprise skills cannot be denied, and that most of the responsibility lies with them when it comes to development of graduates' enterprise skills. This point was further emphasised in the comments about the role of the pre-registration year in building pharmacists' skills and personality by exposing pharmacists to real-life situations and workplace environments. An employer indicated that most of the skills he earned were during his pre-registration year. Other employers mentioned that without the real-life exposure in pre-registration year, pharmacists will not be able to understand how their knowledge applies in the real-world. From another aspect, some employers also mentioned that practicing real-life situations is more risk averse as opposed to role plays that students engage in

during their studies which are merely educational, which is something that adds more value to the development of skills in real-world contexts. Therefore, the employers' thoughts were that it is not possible for pharmacy schools to graduate pharmacists with the sufficient level of skills and competencies to handle real-life situations.

E4(R): *'Usually pharmacists build these skills after they graduate as part of their work and experience'.*

E10(H): *'...even if you are taught these skills at university and in your pre-registration you would still need to develop skills through experience...'*

Despite the fact that employers agreed that it is mostly real-life experience that leads to developing graduates' enterprise skills and sharpening them, they did not believe that this should release pharmacy schools completely from the responsibility of developing these skills. On the contrary, employers saw that pharmacy schools should prepare graduates with at least a baseline of enterprise skills upon which employers could build, this preparation should also enable pharmacy graduates to take a step forward toward a career in the real-world more efficiently. However, such a baseline of skills has not yet been met according to employers' opinions as will be discussed in Sub-Section 5.4.1.

E4(R): *'I believe universities should take part of the responsibility to develop pharmacists' skills before they graduate'.*

E7(R): *'...the University can play a role here by providing pharmacy students with a base of skills which they can build on later...'*

5.3.2. ACADEMICS' PERSPECTIVES

The responsibility of developing pharmacy students' enterprise skills was also discussed with the academics. During interviews with academics, the views of employers which were discussed in the previous section were brought forward to pharmacy academics who were asked to comment on these views and provide their

opinions about them. All academics teaching science and practice-related courses at the various HEIs sampled agreed that the development of pharmacists' enterprise skills is a shared responsibility between pharmacy schools at HEIs and the real-world organisations. Their views varied between those who saw that HEIs share a greater responsibility of developing the skills and those who saw that both the real-world and HEIs are equally responsible for developing them.

A8(S): 'I think it's a shared responsibility and I think our students are very lucky because they have a lot of training in the hospital and they pick up on a lot of skills there'.

A10(P): 'As a vocational degree I guess most of the responsibility lies with us... our aim is to produce graduates who are confident to be pharmacists, and to be a good pharmacist you certainly should have a good grounding in those fields and if we don't do that we're failing our duties to the profession...'.

Despite that academics believed that HEIs share a lot of the responsibility of developing graduates' enterprise skills, it was evident as the interviews went on that academics highly valued the importance of real-life experience in developing graduates' enterprise skills and saw that these skills cannot be fully developed without it. Academics also added that even if pharmacy schools equipped students with a good level of enterprise skills, graduates will still have to go to the real-world and build up their skills all over. This is discussed in more detail in Section 5.4 about the level of skills demonstrated by recent pharmacy graduates.

A2(P): '...you would expect to see a difference between a junior medical student and an F1 doctor wouldn't you? And the same goes for pharmacists. And maturity comes with dealing with these skills in the real-life situations which are different from here...'.

A14(P): 'I think our sandwich course students are. Maybe our fourth year students still lack a bit of what is needed but they still have more practice to go through in their pre-registration year'.

A1(S)RI: *'...the amount of exposure we give them here is like a fortnight in the real-world...'*.

Academics also mentioned that pharmacy schools are placing a lot of effort on improving their graduates' knowledge and skills together, but whether the graduates end up demonstrating them in the real-world is something else.

A1(S): *'We try to develop these skills, but whether they have them or not is something else'*.

A12(P): *'I can tell you if I think they're flexible or not in doing things but can't tell you if they are going to be so in practice'*.

5.4. THE LEVEL OF ENTERPRISE SKILLS DEMONSTRATED BY RECENT PHARMACY GRADUATES IN THE REAL-WORLD MARKETPLACE.

The last twenty years have witnessed a growing emphasis in pharmacy education on practice as opposed to science. Such changes have affected the way in which pharmacy education is delivered and the quality of pharmacist's output resulting from the educational process. This shift has also affected the opinions of pharmacy academics in pharmacy schools and pharmacy employers in the marketplace. And although academics and employers seemed to agree on certain points, there are some conflicts in their opinions about the value of the changes implemented and how the developments in pharmacy curricula have affected the quality of pharmacists that the educational process is producing and their ability to engage in the real-world. This section will start by discussing the views of employers from retail, hospitals and industry sectors about the level of enterprise skills demonstrated by pharmacy graduates, followed by academics comments and opinions regarding this issue.

5.4.1. VIEWS OF EMPLOYERS

Employers agreed that pharmacists nowadays are graduating with a strong clinical focus and background, they also mentioned that recent pharmacy graduates are presenting with strong knowledge related to various aspects about medications and

prescriptions. Nevertheless, employers have expressed various concerns related to this growing clinical emphasis in pharmacy education and how it has led to some confusion among recent pharmacy graduates in retail, hospital and industry sectors, and possibly lead to some weakness in their ability to demonstrate some of the essential enterprise skills required in the real-world. The following paragraphs explain the views and opinions of pharmacy employers from retail, hospital and industry sectors as to how the updates in pharmacy education have influenced pharmacy graduates in each of these sectors, and more importantly how these updates have affected their ability to demonstrate the necessary enterprise skills.

Interviews with employers showed that they are not generally satisfied by the level of enterprise skills demonstrated by recent pharmacy graduates. Employers seemed to be specifically dissatisfied by graduates' ability to demonstrate confidence and communication skills, which are essential in a pharmacists' career. Other skills that employers referred to as lacking in recent pharmacy graduates included poor organisational skills, management skills and personal skills including bad time management and lack of team spirit in accepting many of the tasks assigned to them once they are hired.

E2(R): *'Pharmacists usually get exposed to real-life situations immediately after finishing their studies and they find themselves unable to deal with people and manage different situations'.*

E5(R): *'...most fresh graduates present with a low confidence level'.*

E12(I): *'Some pharmacy graduates lack the skills of writing emails!! Unfortunately, they lack some of the essential skills'.*

Before discussing this section any further, it is important to point out that many employers mentioned that there could be a lot of personal variations among graduates when it comes to their ability to demonstrate enterprise skills. Employers said that

some graduates could often present with a good level of skills but this is a personal thing that differs from one person to another and is not always related to HEIs; some students/graduates are merely better than others in demonstrating these skills.

E3(R): *'I have to say that some can be very confident and others not, depends on the person really and not the university education'.*

E10(H): *'It's a maturity thing I think. Some students who come here, even though they've finished their five years of studying, can seem very immature; and we get other pre-reg students from sandwich courses who haven't finished their five year studying who are more knowledgeable, more motivated and more switched on'.*

When discussing the level of knowledge, employers commended pharmacy graduates on the level of their clinical knowledge and some of their clinical skills which they thought to be very well established generally despite the fact that personal variations among graduates existed. Some employers reflected some positive views about the growing emphasis in pharmacy education on clinical aspects, which has lead today's retail pharmacists to become more patient-focused as opposed to the older retail pharmacists' generation who saw themselves more of dispensers. The growing clinical focus and patient-care emphasis have increased retail pharmacists' awareness about their role as advisors and health-care providers whose ultimate responsibility is to ensure patient health. All employers regarded such clinical knowledge and skills to be very important in pharmacists' careers to enable them to engage in their active role as health care providers.

E4(R): *'Graduates nowadays are generally more comfortable about dealing with people and handling customers in retail'.*

E5(R)RI: *'...I can see that my colleague pharmacists now see themselves differently from the slightly older pharmacists who see themselves as dispensers... So I see my role more of an advisor as opposed to a dispenser... more involved with the actually clinical role with the patients'.*

However, despite that some employers can see development in graduates' clinical knowledge and somewhat their skills, employers complained that graduates still lack general skills that are necessary to enable them to apply their knowledge and engage in their active role. Employers raised the issue linking the educational process to the real-world and to real-life situations. Despite the fact that pharmacists graduate with strong clinical knowledge, employers noticed that they struggle to realise the practical application of that knowledge in real-life and find it generally difficult to apply their active role in the real-world. Employers mentioned that during their HE studies, pharmacists are highly involved in clinical training and practice activities, and become well-educated about drugs, their interactions and doses, as well as preparing medication plans, however, when it comes to real-life there are more aspects to a pharmacist's career than that, and graduates seem to struggle to fit their knowledge in the real-world.

E12(I): *'No, I don't think they present with a sufficient level of skills, and I believe one of the main reasons for that is that universities don't focus on the practical part of learning'.*

E11(I): *'They memorise facts just to pass the exam and then forget... when they come to work they find it very difficult to relate their knowledge to real-life'.*

E10(H)RI: *'...when you put them in a real-life situation on a ward with a patient who's got a multi-disease situation they struggle!'.*

Additionally, employers also saw that the growing clinical focus in pharmacy education is leading to graduates who are possibly too much clinically focused. Employers, especially those in hospitals, mentioned that when pharmacy graduates start a career they are normally assigned tasks in dispensaries involving, for example, formulations, dispensing, handling customers, reviewing prescriptions and working on aseptic preparations, and would not normally be assigned as part of an hospital

team to go on wards, prescribe medications, and review patients' treatment plans, even though they have been well-trained to handle such tasks during the educational process which largely focuses on these clinical aspects. Only pharmacists with more experience and specialised clinical degrees would actually have the opportunity to be part of an hospital team that handles more clinical issues. Employers thought that the educational process does not actually prepare students to the fact that when they graduate they will have to start their careers with more basic jobs and gradually move on to become more involved with patients. Accordingly, and after being thoroughly engaged in clinical activities that greatly enrich their clinical knowledge and skills during HE, graduates move on to the real-world to find out that their role is slightly different from what the educational process has focused on. Recent pharmacy graduates find it difficult to accept jobs in dispensaries; they see such jobs as too menial for them and feel over educated for the tasks involved. Employers believe that such perceptions have affected recent pharmacy graduates' ability to demonstrate or express some of the enterprise skills which they might have earned during their HE such as team spirit, time management, flexibility, confidence and organisational skills.

E8(H): *'...at the beginning they think more of only the clinical skills and don't appreciate the need for delicate handling of people for example...'*

E10(H)RI: *'...perhaps the universities are providing them with higher expectations about what they would be doing once they qualify'*

The growing emphasis on clinical aspects in the educational process was also discussed by employers from the industry sector who seemed to be the least satisfied or content by the level of enterprise skills demonstrated by recent pharmacy graduates. Employers said that pharmacy graduates are too much clinically focused and underprepared for jobs in industry and research, and cannot see how their knowledge applies in these contexts since their learning process was very much

clinically focused, thus, making them unable to see themselves working in a lab or factory setting for example. Additionally, industry employers saw that pharmacy schools do not encourage students to seek trainings in industrial sectors or in research and that all the attention is focused on trainings in retail and hospitals. Employers believed that graduates favour careers in retail or hospitals over others because they feel more comfortable in clinical contexts which they are more used to, and perceive the research and industry sectors as a dull, while in reality it is they who lack the necessary knowledge and skills required in these sectors. In this regard, employers called for placing more emphasis on scientific aspects in pharmacy education in ways that increase students' awareness about the career options available for them and build more interest in them toward industry and research careers.

E9(H): *'...some pharmacists would love to work for industry but they don't really know what industry expects from them and what they need to have to enter this sector'.*

E10(H): *'... when you place more emphasis on clinical skills I guess it'll be at the expense of pharmaceuticals and industry skills... and universities do tend to make the clinical part more exciting and the chemistry part is usually a bit more dull'*

E11(I): *'...the pharmaceutical industry is crying out loud for good competent pharmaceutical scientists... I believe they go more for careers in hospitals and retail because they're more exposed to these environments in university and they feel like this is what we know... Universities should expose students more to lab experiments and allow them to take part in research... Unfortunately, pharmacy education doesn't encourage scientists...'*

E12(I): *'... unfortunately, the main focus in pharmacy education is on clinical part...'*

As mentioned earlier, employers indicated that recent pharmacy graduates are especially weak in their ability to show confidence and establish communication. One of the employers in retail felt strongly about the lack of these skills and talked about two main downsides for this lack of skills; on the one hand it makes graduates

unconfident to establish communication channels with patients, and many of them might feel shy to talk to patients, especially when it comes to sensitive or private issues. On the other hand this also makes graduates hesitant to communicate with other health professionals, namely doctors, mainly because they cannot articulate their ideas and lack the confidence to stand up and discuss a prescription with a doctor. Employers added that most of the time recent graduates feel that they could not possibly know better than other members of the health team and, therefore, prefer to stay in the shadow of a doctor or a chief pharmacist than to express their opinion about a certain prescription.

E5(R): *'Graduates are underprepared, especially when it comes to some of the most essential skills as communicating with patients, they lack the necessary communication skills. They also lack enough assertiveness and seem to be weak in decision making'.*

E5(R)RI: *'...what we need to do as pharmacists is to develop better relationships with other professions, and I don't think this is missing due to lack of knowledge, I think it's due to the lack of being able to communicate with other professions and I think this is the key for the pharmacy profession'.*

In this regard, retail pharmacists also talked about the need for management skills, personal skills and organisational skills. Employers mentioned that recent graduates do not realise that alongside the clinical knowledge and skills, they also need to have other skills that enable them to work in busy environments and under pressure; but yet graduates seem to be much more focused on clinical aspects and not interested much in anything else. Employers emphasised that a pharmacist's career is part of a business, and even though many pharmacists may not assume a management position in their careers they would still be exposed to business environments. This point was reflected by many employers, especially those in retail where business and management skills appeared to be especially important. Pharmacists can be involved with purchase transactions, promotional offers, customer enquiries, customer

complaints, profits and losses, corporate governance, organisational culture and other aspects of business environments. Employers saw that such skills are very important for pharmacists but yet did not prioritise them over pharmacy knowledge. However, such aspects of management, personal and organisational skills are not familiar to recent pharmacy graduates. Employers mentioned that pharmacy education should embed practical activities that aim at building pharmacists' management skills, confidence, communication and assertiveness, which currently seem to be underdeveloped in today's recent pharmacy graduates. However, the majority of employers did not encourage including separate management courses as part of pharmacy education; they mentioned that pharmacy education should be focused around pharmacy, especially that it is a science degree not a business one.

E10(H): *'...organisational skills particularly, I think, need to be developed for the multi-tasking we are involved in here to be able to use knowledge but at the same time be able to work in a busy environment and under pressure...'*.

E5(R)RI: *'...we're in a business, and when you're in a business your clinical skills are not seen as more important than your business skills...'*.

E5(R)RI: *'...pharmacy is not only about drugs, it's about managing other people and resources'*.

As a suggestion to improve graduates' level of skills, employers mentioned that pharmacy schools could consider hiring practicing academics, and that should not be limited to practicing pharmacists from hospitals and retail, but also pharmacists from industry to develop students skills in that area, and non-pharmacy people like librarians who could develop students' research skills and communication specialists who could develop their communication skills as well as other skills. Employers also stressed the need to put students through real-life situations involving different contexts and assess their ability to handle these situations during their education. Employers mentioned that exposing students to real-life situations had better take

place throughout their studies and not only after they have finished; this, however, raised other concerns as having immature or less-knowledgeable placement (or internship) students who could waste employers' time and efforts, in addition to the issue that this might place more financial burdens on HEIs. Generally speaking, employers encouraged giving students more responsibilities and duties that relate to different areas of the real-world and that are expected to help them gain more ownership and understanding of their roles in the real-world.

E6(R): *'...so I believe encouraging pharmacists to train in work settings during their studies in college would help them develop their knowledge and skills in such a way that would aid them in learning better'.*

E11(I): *'...university education should be split 50% science and 50% practice... Universities should expose students more to lab experiments and allow them to take part in research... Unfortunately, pharmacy education doesn't encourage scientists and so pharmacy students don't feel like taking a part in research'.*

5.4.2. VIEWS OF ACADEMICS

The importance of enterprise skills in the career of a pharmacist is highly regarded by academics in pharmacy schools. Furthermore, pharmacy academics elaborated on how pharmacy schools in general place significant efforts to develop their students' skills in several ways besides developing their knowledge.

However, despite the efforts placed by pharmacy schools to develop students' enterprise skills, employers in the marketplace were still not satisfied by the level of skills demonstrated by recent pharmacy graduates; employers saw that graduates lacked some of the essential enterprise skills and usually struggle when they first start their careers in the real-world. Academics were asked to comment on employers' opinions; the following paragraphs discuss academics' views regarding the level of skills demonstrated by recent pharmacy graduates in the marketplace and whether or

not academics believe that pharmacy graduates are ready for the real-world. However, details about academics' justifications regarding the level of skills demonstrated by recent pharmacy graduates and suggestions to improve the current situation will be discussed separately in detail in Chapter 8.

Regarding developing students' enterprise skills, academics mentioned that pharmacy schools place a lot of effort and invest in applying various learning approaches that guide the students through a four-year learning process during which they get to develop a wide range of knowledge and enterprise skills; these learning approaches will be discussed in detail in Section 6.3. Nevertheless, and despite these efforts placed by pharmacy schools, academics agreed with employers that pharmacy graduates are still lacking some of the essential skills, and no major differences were noted among the views of different groups of academics. Academics also agreed that the ability to demonstrate confidence and communicate are among the main skills which were lacking in pharmacy graduates; they mentioned that recent graduates are not showing a sufficient level of these essential skills which is an issue that needs to be addressed more, especially that it is affecting graduates' ability to communicate with other health professionals once they start their careers. Academics also mentioned that recent graduates probably still lack numeracy skills and good time management.

A5(P): 'I think things like confidence, I think is an important area, and I think pharmacy probably hasn't been very good at that over the last years...'

A5(P): 'I mean they have problems with numeracy, they have problems with being able to communicate and such like'.

A10(P): '...and they find it difficult to interact with other health team members, we do encourage them in 3rd and 4th years to interact and if they find something wrong they are encouraged to go and interact with doctors about it

but they find that really really difficult, and we find that really really difficult to teach’.

Academics were asked whether or not they believed pharmacy graduates are ready to meet the challenges of the real-world despite their lacking of some essential skills. Academics mentioned that the efforts of pharmacy schools should help graduates understand the things they need to understand when they go to the real-world, and believed that their graduates should have the necessary level of knowledge and skills to meet the needs of the real-world in whichever sector they decide to go for. Academics also added that the pre-registration year requirements offers new pharmacists in the marketplace the opportunity to sharpen their skills and develop them in ways that should allow them to be ready once they qualify.

A6(P): *‘I think they are, but I don’t think they find it easy, but I think they are well prepared and probably more prepared than they were 10 years ago’.*

A10(P): *‘We are confident that our graduates are ready...’.*

A17(S): *‘I think we lay a good groundwork for them to go on...’.*

5.5. THE VALUE OF ENTERPRISE SKILLS FOR PHARMACY STUDENTS

5.5.1. FROM THE EMPLOYERS’ POINT OF VIEW

All employers agreed that pharmacy students cannot really see the value of enterprise skills and the need for them until after they actually engage in the real-world; they also added that if students had realised the importance of these skills during their studies, they would have been more careful to develop them before they graduated. Employers mentioned that this under appreciation of the value of enterprise skills is partly due to the fact that certain skills cannot be valued until pharmacists engage in real-life situations and see how these skills apply in them, but they also mentioned that this is related to pharmacy schools not focusing enough on developing these skills and assessing them in students. Employers mentioned that the pre-registration year could help students better

understand the value of these skills through real-life engagement and application of knowledge, but this training is not useful always since it is not standardised over the UK and not all students get the same level of exposure during this year; in addition to that some do not get enough or any follow up from their tutors and others might not bother to learn anything new.

E1(R): *'Probably not, they are probably not given the opportunity, and they're probably naive at the moment until they are thrown into the big world and probably won't understand until they start working'.*

E9(H): *'I don't think they do when they come, but they do as they go on'.*

E11(I): *'Not while they are doing their studies. While studying they think like we will graduate and get high salaries'.*

5.5.2. FROM THE ACADEMICS' POINT OF VIEW

Academics mentioned that the value of enterprise skills in a pharmacists' career life is an issue that they emphasise with students at all stages of the programme. This point was agreed on by all groups of academics. Academics discuss with students the value of these skills and their impact on their professional role in the marketplace and make it very clear for them from the beginning that the educational process will take them through a variety of learning approaches that are expected to help them in developing the knowledge and skills that they will need in the real-world.

A2(P): *'Yes, they do know about these skills and the need for them, and the proof for that is in their portfolios and the fact they can write them and write about their communication skills and empathy skills and those sorts of things in the first year. It also shows in our accreditation reports when accreditors come and speak to our students and report that they do have an understanding. And I think it could be evidenced by the fact that our students could discuss those skills'.*

A8(S): *'Certainly in our introductory sessions with hospital tutors we talk about the importance of these generic skills and communication and team work and the use of database, so with practicing pharmacists we try to show why we use this teaching approach and focus on these skills'.*

Academics believed that engaging students in the various learning approaches they apply should help students realise the importance of the skills they are developing and how these will be of value in the real-world. Academics added that before engaging students in these learning approaches they will not be able to see their value and that is why first year students in general prefer to be spoon-fed through traditional lectures as opposed to fourth year students who realise more the value of these skills; one academic added that graduates get to appreciate the value of these skills even more after they engage in real-life. However, academics also mentioned that pharmacy schools still need to invest more in engaging its students in real-life situations, and despite the efforts placed there will always be a range of students where some will quickly realise the importance of such skills and others will take more time.

A11(P): *'...we make it clear from the beginning that if you don't want to be active learners and don't want to engage in the course then don't come... I guess the more they get familiar with the process the more they appreciate it'.*

A18(P): *'I think some of our students certainly in the early years don't really appreciate the need for those skills... and then when they're in actual practice then they'll appreciate'.*

5.5.3. FROM THE STUDENTS' POINT OF VIEW

Students agreed that enterprise skills are important for every recent graduate in the marketplace. This view was reflected by two students who mentioned that they were lucky to have had the opportunity to work in the real-world while doing their studies. They said that the opportunity to work in the real-world has made them realise how important these skills are. On the other hand, the other two students mentioned that they did not have an opportunity to work in the real-world while studying, and said that they believe that such skills are important even though they cannot really judge to what extent.

S2: *‘Having worked in the real-world while studying, I can say these skills are very important for any graduate’.*

Students also mentioned that they believe the educational process involves them in various activities that help them develop their skills, but this usually does not take place in the first two years where they described learning to be more knowledge-focused and lacking sufficient practical activities. Students also agreed that including such activities is more focused in practice-related courses which they saw to be more interesting. Yet, they added that despite having a range of skills, they would feel hesitant about handling a pharmacy on their own once they graduate, and supported integrating more placements within the educational process to help students develop their skills more.

S1: *‘Placements should be integrated within the learning process more. I know it would be tough, but it would help a lot’.*

Regarding the responsibility of developing enterprise skills, students agreed that HEIs should support students in developing those skills from year one; yet, they agreed that the real-world also contributes significantly to developing them.

S2: *‘I’ve been on a placement so I know the real-world contributes to developing those skills, but I think HEIs should also work on developing them from year 1’.*

5.6. CONCLUSION

This chapter presented an analysis of the findings related to the first theme regarding enterprise skills in the pharmacy context. Through presenting views of employers, academics and students –when applicable– the chapter provided their views about the importance of ability of pharmacists to demonstrate enterprise skills in the marketplace, who is responsible for developing them, the level up to which they are developed, and their value to pharmacy students themselves.

Several points relating to this research questions were identified under Theme One. Generally, there is a lack of understanding of the concept of enterprise education among pharmacy academics. Yet, after explaining this concept to the groups of respondents, they all agreed to the importance of enterprise skills for pharmacists and their relevancy to graduates. Yet, employers were not satisfied by the level of skills demonstrated by recent graduates, but academics argued this point and stressed the importance of shared efforts between HEIs and the real-world, which are currently lacking, in order to achieve a better level of graduate enterprise skills. In this regard, employers and academics did not agree as to who is responsible for developing pharmacy graduates' enterprise skills. Employers saw that the responsibility of developing those skills is mostly their responsibility in the real-world, but most academics saw that it is a shared responsibility between HEIs and the real-world. As for students, they all agreed that enterprise skills must be valuable for graduates but added that real-life experience is important to evaluate the extent of that importance. Students also agreed with academics that the responsibility of developing enterprise skills should be a shared one between HEIs and the real-world.

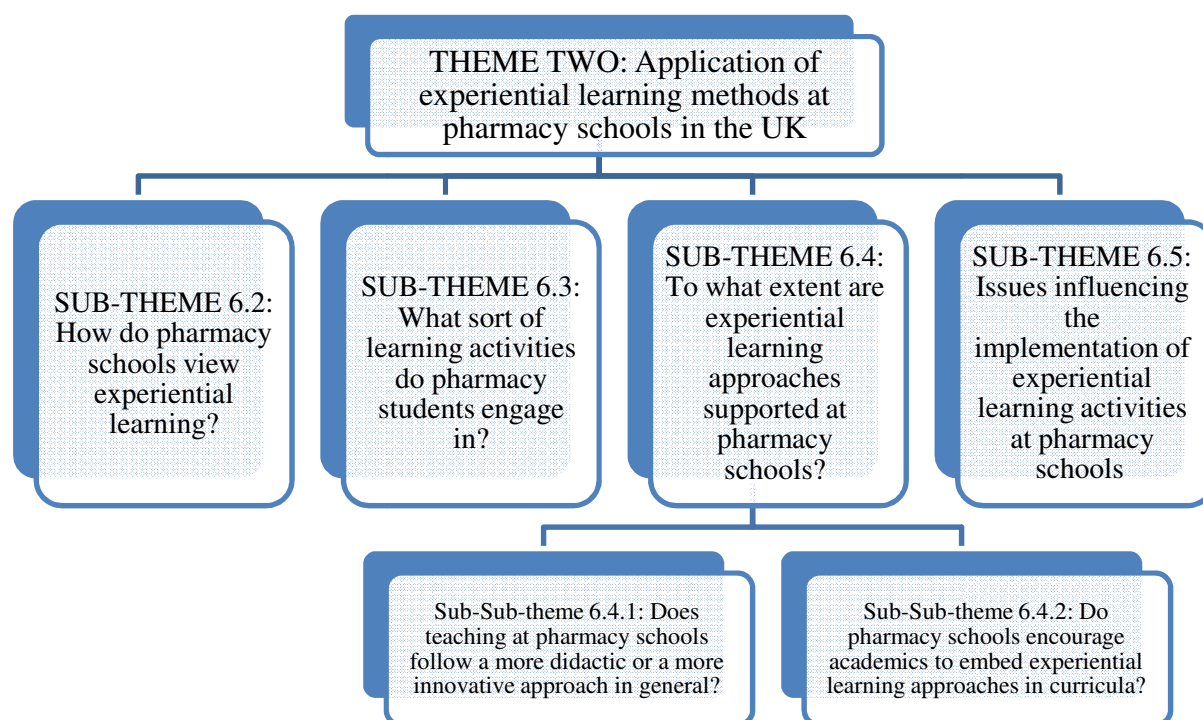
CHAPTER SIX: DATA ANALYSIS

ANALYSIS OF THEME TWO: APPLICATION OF EXPERIENTIAL LEARNING METHODS AT PHARMACY SCHOOLS IN THE UK

6.1. INTRODUCTION

As explained in the literature review in Chapters 2 and 3, the approaches and modes of applying experiential learning are very flexible and versatile; for example, PBL is one of the commonly applied experiential learning approaches that can incorporate a range of modes from applying PBL in one or two modules in one year only, to applying it throughout a programme as a learning philosophy. This chapter discusses the second theme in the analysis of this research, which is about application of experiential learning methods at pharmacy schools in the UK. In doing so, the chapter considers academics' views about experiential learning methods and the activities incorporated in their application at pharmacy schools. The chapter also investigates whether pharmacy schools encourage the application of experiential learning methods, and whether there are barriers to implementing them. This analysis is organised under four main sub-themes included in the thematic flowchart in Figure 6.1, where each of these sub-themes is discussed next in detail.

Figure 6.1.: Thematic flowchart for Theme Two.



6.2. HOW DO PHARMACY ACADEMICS VIEW EXPERIENTIAL LEARNING AT THEIR SCHOOLS?

Academics were asked to talk about the application of experiential learning approaches at their schools. It was clear from academics' responses that pharmacy schools apply a number of experiential learning approaches; these included PBL, EBL and CBL.

A5(P): *'We do PBL in the third and fourth year when we go out to hospitals and in tutorials. We also have EBL in the first year, in chemistry'.*

A8(S): *'...we have an enquiry-based module to reinforce what they learned in the pharmaceutical chemistry course in the first semester'.*

A19(P): *'We use sometimes PBL and sometimes CBL which is almost the same...'.*

When asked about the mode of application of PBL, most academics did not relate the mode of PBL applied at their schools to its pure traditional form that is typically seen in medical schools. Some academics did not consider the learning applied at their schools as PBL for

that reason since they related PBL to a rigid learning pedagogy that must match with the structured approach of PBL applied in medical schools.

A6(P): *'We only have one PBL course in the whole programme in the sense of pure PBL, but there are little pockets in other modules that could be described as EBL, so they don't follow the structured approach followed in PBL and they are more of inquiry self-directed learning approaches'.*

A10(P): *'We use case-based learning here rather than PBL. True PBL is in done medicine schools and it's difficult here because it's very very resource intensive to run it properly...'*

6.3. WHAT SORT OF LEARNING ACTIVITIES DO PHARMACY STUDENTS ENGAGE IN?

This section discusses academics' views about the activities that pharmacy students engage in as part of experiential learning approaches which mainly include PBL, EBL and CBL. In this regard, academics mentioned that pharmacy students engage in various types of activities which involve the investigation of problems/scenarios as the centre of their learning process. Academics also mentioned that the complexity of these problems vary over the years, where a number of academics agreed that the complexity increases as students progress in their studies in order to develop their skills at higher levels. These problems are generally provided to students through activities that do not depend on spoon-feeding or provision of underpinning knowledge, but rather on triggering students and allowing them to pursue the knowledge needed while being monitored or facilitated by academics. It is worth mentioning here that the younger and older generation of academics shared their general views regarding the activities that students engage in during their learning experience, and no notable differences were seen between them.

The problems/scenarios provided to students vary widely. For example, students could be challenged with a patient's medical problem provided in a case study. Case studies were mentioned by all the interviewed academics who added that case studies are very useful tools

to help students envision real-life situations and think about all aspects they would actually need to consider. For example, they might be faced with patients who cannot swallow tablets, or cannot take a certain drug due to religious issues, or patients who are sensitive to certain drugs or are on multiple medications, or even patients with wrong prescriptions or contra-indicated medications. While working on cases, academics mentioned that students are also requested to identify how they fit in the case study and what their roles would be as pharmacists in resolving the situation within the health team, which should help them understand their roles in real-life and how their knowledge applies in it.

A1(S): *'...the interaction with physios and nurses when they're given a case study, not necessarily to solve the problem but to identify how they fit into it and how they work as part of the team...'*

A14(P): *'...students will have more cases which they will resolve in groups, which is probably aligned with PBL though it's not PBL in its traditional format'*

Besides providing students with written case studies, three academics mentioned that they apply role plays through which patient scenarios are provided to students. Role plays are used to mimic real-life situations which allow students to identify their role as part of the health team and accordingly react to various situations. In this regard, a small number of academics talked about OSCEs where actors perform a role play to demonstrate a patient situation.

A12(P): *'... we have the OSCEs which are used quite extensively, students are given cases... students are observing and trying to find what the problem is...'*

A16(P): *'... they have OSCEs where we've got an actor and do sort of a role play and have to do the counselling with the actor being the patient and they do a medicine's review and things like that...'*

Academics mentioned that students may also be requested to analyse a chemical reaction or test a formulation through conducting experiments, which were found to be quite commonly applied as part of the science-related and practice-related courses. For example, students will be provided with materials and requested to think about the proper formulation and

compounding to turn them into a medication; for that they will have to investigate chemical structures, possible chemical reactions, valid formulation methods, doses, dosage forms and so on. In many cases students can be provided with a patient scenario where they will have to come up with the whole treatment plan which might involve aseptic preparations sometimes. Accordingly, experiments should help students integrate different areas of knowledge together; improve students' critical thinking and problem solving as well as their analysis skills.

Furthermore, academics mentioned that students can be provided with problems/scenarios through prescriptions, which can be provided sometimes as part of case studies. Here, students would be required to identify possible problems/mistakes in these prescriptions, meanwhile students would have to identify the people they need to talk to in order to take the necessary corrective and preventive measures. Students would often have to establish communication networks with doctors and patients, through role plays or reports, and provide suggestions to resolve the problem as well as approaches to assess whether their suggestions have worked out or not.

A2(P): 'We always tell students if you want to become receptive pharmacists you don't call a doctor and say I found a problem, you should say there appears to be a problem with this prescription, I suggest a, b and c, and I prefer we go for c because so and so... You have to take your part in it and show that not only this time it has been solved but the doctor knows now better than he knew before'.

Academics mentioned that when students are provided with problems/scenarios, they are offered time and space to discuss and resolve them. Academics mentioned that students are usually exposed to these problems in active learning environments like tutorials which academics saw to be very useful for discussing what students learned in lectures and discussion of case studies. Thus, tutorials offer the opportunity of dynamic and interactive

discussions between students and academics, and are expected to help in developing students' communication, self-learning and confidence.

A16(P): *'...so students will not be given all information in these tutorials but have to look it up to answer a set of questions...'*

A20(S): *'...we have cases and students learn through small tutorial groups...'*

Laboratories were also mentioned by academics as active learning environments where groups of students of varying numbers depending on the objectives of the session get the opportunity to work on experiments or scenarios where they are required to tackle those situations. Students in groups are given tasks that involve more student engagement in the learning process, and should help them in developing team-skills and project management skills.

Sometimes students can be exposed to problems/scenarios in real-world contexts during their placements, for example. Academics mentioned that students engage with pharmacists, doctors and patients in the real-world during their placements, and are often required to reflect on the problems and situations they face in portfolios.

A2(P): *'From the very first day of the course students do day placements with pharmacists, so they engage in practice situations which they write about in their portfolios... these environments help them pick up communication and networking skills quite quickly, and the reflective writing skills'*

Workshops were also mentioned by a small number of academics to offer a great opportunity for students to engage together in small groups to resolve various issues. Even though they are not very common, some pharmacy schools apply them and see them as an opportunity to develop students' team-skills and problem-solving skills.

A8(S): 'We talk about all the skills needed and the aims and objectives in a two hour workshop and then they get four weeks to deliver that report we just talked about, and they get two facilitative sessions with their academic advisor as small group discussions, and its up to them to work out where and when to meet... manage to get the work done within the deadline assigned'.

Academics added that in many cases students are divided into groups and given problems/scenarios, and sometimes each group is assigned an academic facilitator to monitor the group's learning. It is important to point out here that learning does not typically take place through small groups throughout the MPharm programme, but rather at separate times during the programme, and this is only done by some of academics in some modules.

The number of students in group activities at pharmacy schools could range widely where sometimes small groups of four to six students are involved and sometimes larger numbers are involved. Yet, several academics mentioned that their schools are working toward having more smaller groups in order to improve the efficiency of learning. A few academics mentioned that their schools apply imposed groups so students do not get to choose their partners in a group; that way the groups would provide students with a better resemblance of real-life situations where people are expected to engage with people they do not know, which is expected to develop their team and communication skills in a better way.

A5(P): 'We have about six in a group in a year, first we had a lot, about ten and sometimes more, but we reduced the number to about six which improved it... make it more team-based so it will involve more discussion about patients'.

A19(P): '...we start with quite large groups of 10 to 16 students... by the time we reach fourth year we're working with groups of no more than four students...'.

Academics also mentioned that their roles always involved them acting as facilitators rather than lecturers or spoon-feeders, where they would arrange for meetings with groups and facilitate or monitor their learning process as well as provide advice for students during regular meetings with them. However, it was noted that it is not always possible for

pharmacy schools to assign a separate facilitator to each group individually mainly due to lack of sufficient resources, even though this does take place quite often at some schools.

A5(P): *'...our role is very much to facilitate that, we help them to learn, give them feedback, we discuss, we use examples and they produce things like care plans...'*

Academics added that after tackling a problem/scenario and coming up with findings, results, observations, resolutions and others, students will be faced with the challenge of presenting those findings in a logical way alongside the approaches followed to reach them. This presentation of findings can be done in several ways. In this regard, many academics talked about portfolios which were found to be applied quite commonly. Academics request students to identify various problems, situations or errors in real-life placements or during their studies and reflect on them. The reflection should include how the students identified the problem, how they approached and resolved it, and how they assessed the outcomes; academics added that more credit is given to students who are able to come back and show how the identified problems/situations have helped them develop and manage future situations in a better way. Furthermore, portfolios were seen to help build students' professionalism and help them become more focused and determined to accomplish since one of the objectives of these portfolios is for students to show how they have met the learning outcomes; so students become self-driven to achieve better standards, especially that portfolios are part of their CPD requirement which is essential for them to become registered pharmacists.

A2(P): *'...they are also looking for critical incidences or exciting incidences which they will reflect on. So they don't come back and tell us what they did, but they come back and reflect on their experiences'*

Nevertheless, it is worth mentioning here that the mode of applying those portfolios was seen to vary across different schools. Some schools apply portfolios in a single module in one year, where the benefits in such case are not very evident (A14: *'... its only 1st year at the*

moment but it's something we want to continue as we go on through the course...'). Other schools apply portfolios as a learning strategy/philosophy starting from year one up until students graduate, thus, allowing students to develop and grasp the skill of reflective thinking and writing better and embed it in their way of thinking and communication more efficiently (A10(P): 'They write portfolios right from the first year up'til the fourth year, comprehensive portfolios that cover everything... relate that to certain key skills we want them develop as self-management, problem solving, leadership, negotiation and that kind of thing... show their professionalism... focus on what their strengths and weaknesses are... we ask them to comply with the CPD requirements of the RPSGB so they actually mimic the CPD cycle there').

A lot of academics also talked about oral presentations and less frequently about vivas, through which students could present their resolutions of problems/scenarios. Here, students present in front of a group of people and this could take place as part of group projects or sometimes graduation projects. Academics mentioned that students are requested to present their work, including how they managed the project, how they identified and resolved the problems and learning needs, how they distributed the work, what advantages they gained, what mistakes they learned from, and the important findings they discovered.

A3(S): 'We also have presentations and part of that is to get the students to try to think about how they would communicate with their particular project. So we are looking at developing communication skills'.

A10(P): '...we do this viva with them... we just fire questions at them to see if they actually understood what they are doing...'.

A lot of academics also talked about employing posters where students choose or are given a certain issue which they have to investigate and present in a poster. Again, academics mentioned how posters help students condense huge amounts of information in a summarised, comprehensive and logical way. Posters also help in developing students'

conceptual thinking where they have the opportunity to relate different concepts in schemes or graphs and show how they relate together.

A3(S): *'We also have poster sessions where students have to think about how to transfer what information they have to a small document'.*

A19(P): *'...in every topic related to science, practice or pharmacology they do posters and oral presentations sometimes in groups and sometimes on their own to develop their oral communication skills'.*

Students are also often requested to write reports and essays to present their resolutions to problems/scenarios including their discussions, explanations, analysis and critical evaluations. Academics mentioned that they consider how logical and rational the students' arguments are and whether they are based on valid research, which should help students develop their research, written communication and analytical skills.

A2(P): *'That's a six-month research project after which students submit their reports and may do a viva'.*

A3(S): *'Students have to do an initial survey of literature which shows how they can focus on exactly what the aims and objectives of their projects are'.*

As part of their work, one academic mentioned that students sometimes work on preparing and delivering Medicines Use Reviews (MURs) and pharmaceutical care plans which should help students build a better holistic understanding of handling problems and their resolutions.

A16(P): *'... they also are presented with a case study and from that they have to do a medicines review form and that's part of their exam as well....'.*

To a lesser extent, academics mentioned that students are sometimes informed about seminar and conference events that might take place at different times in different parts of the UK. Even though these events could present a great opportunity for students to present, they are not utilised by pharmacy schools as an opportunity for students to present their work mainly because the nature of problems/scenarios discussed at such events are at a higher level than that expected by undergraduates. Nevertheless, at the current time some schools encourage

their students to attend certain conferences or some events that might take place at a lower level, where students could become familiar with the process of presenting their work at seminars and conferences, update their knowledge, and have the opportunity to network with people in the field as well. Furthermore, some schools arrange scientific days or conferences at the level of the school and encourage students to attend; some schools also encourage students to attend the annual RPSGB conference, some schools are considering having students present their work at these events in the future. Students are generally told about these activities and encouraged to attend but there is no follow up on their attendance or degree of benefit so far.

A3(S): 'In the poster sessions at the end of the project we try to make those into like a mini-type conference so that all the students put their posters up and we invite the staff along internally...'

A6(P): 'The module tutor is keen to see us develop our own school research conference... where our students can participate in presenting their own research...'

6.4. TO WHAT EXTENT ARE EXPERIENTIAL LEARNING APPROACHES SUPPORTED AT PHARMACY SCHOOLS?

The previous section discussed in detail the kind of activities that pharmacy schools include as part of experiential learning. Academics also pointed out that these activities take place as part of different forms of experiential learning which mainly included PBL, EBL and CBL. But how often are students engaged in such activities? Are pharmacy schools supporting having them embedded in the curricula? And what are the pharmacy academics' attitudes towards such activities? Such questions will be addressed in detail in this section.

6.4.1. DOES TEACHING AT PHARMACY SCHOOLS FOLLOW A MORE DIDACTIC OR A MORE INNOVATIVE APPROACH IN GENERAL?

All academics agreed that teaching at pharmacy schools is generally a mixture of both didactic and innovative learning. However, academics expressed different views

about the proportion of each type of learning at their schools. Some academics mentioned that teaching at their schools is still largely didactic (A17(S): *'I think it's more of traditional teaching... the lecturer is at the front... and the students are supposed to sit there and listen'*), while others said innovative approaches comprise a larger proportion of learning at their schools (A11(P): *'We work on the proportions of teaching making the larger proportion for small group teaching involving case based or PBL approaches and a smaller proportion of that by lecturing'*), and some saw it is an even split (A2(P): *'...we aim at a 50/50 split over things where you just sit and listen and things where you participate'*).

Innovative learning takes place normally through embedding different experiential learning activities within the curricula. Academics pointed out that embedding experiential learning approaches generally takes place more as the students progress in their studies. Most academics mentioned that learning in the first year is mostly done through traditional approaches, mainly through lectures. Nevertheless, several academics added that some interaction usually takes place during these lectures to make them a little more interactive. These lectures help students build a theoretical background about various topics related to pharmacy before proceeding to more innovative learning approaches that require more active engagement from the students' side. Generally speaking, the higher ranking pharmacy schools, which are mostly among the older pharmacy schools in UK, appeared to be more established in applying innovative learning activities, but still applied didactic teaching to different extents. However, it is worth mentioning that some of the lower ranking schools are among the newer pharmacy schools in UK that are trying to compete for a better rank; academics at these schools appeared to be very enthusiastic about adopting more

innovative learning activities that make the learning experience more interactive and exciting for students.

A2(P): *'...that is obviously more important in the higher years where the learning outcomes are about critical evaluation and setting priorities. The 1st year outcomes are about describe, the 2nd year outcomes are about discuss and describe, so the 3rd and 4th year outcomes would lend themselves more to how they can construct an argument'.*

A17(S): *'...really they don't encourage doing those type of problem solving exercises at first, second year, whereas in pharmaceuticals in the third year, we start giving them problems, case studies, and then fourth year it should all be problem solving'.*

6.4.2. DO PHARMACY SCHOOLS ENCOURAGE ACADEMICS TO EMBED EXPERIENTIAL LEARNING METHODS IN THE CURRICULA?

Academics pointed out that traditional approaches to teaching are not encouraged at pharmacy schools. Pharmacy schools are increasingly supporting embedding more innovative ways of learning including PBL, EBL and CBL into the educational process. This growing support was noted among all pharmacy schools, and is expected to encourage students to become more motivated and better self-learners. Several academics mentioned that their schools are working on developing their current MPharm programmes to make learning more interactive as opposed to traditional didactic learning. A lot of academics also mentioned course leaders generally encourage academics to embed more experiential learning in order to involve students more in the learning process and develop a range of their transferable skills.

A5(P): *'In the new MPharm course we'll be looking to increase the proportion of PBL, the level of didactic teaching will hopefully decrease, but it will never disappear'.*

A20(S): *'We've been undergoing a long going process of reducing the amount of face-to-face directed teaching and increasing the quality of the work and the space kind of activities you're talking about by moving away from the more formulaic teaching in the second, third and fourth year...'.*

From another perspective, academics also pointed out that there is generally an increasing number of pharmacy academics now who hold a postgraduate teaching qualification. This increase is sometimes supported by universities who require their academic staff to hold such a degree, and is sometimes taken as a personal initiative by academics. Furthermore, it was noted during discussions with academics that several pharmacy schools also support their academics by offering them the opportunity to attend workshops and conferences about experiential learning approaches in order to increase their awareness about these learning methods and encourage them to apply it in their courses.

Academic 10: 'I've recently been to a conference in Copenhagen about teaching pharmacology...'

A17(S): 'We do have a very pro-active teaching training and organisation within the university who are trying to encourage the lecturers to make it more interactive'.

A20(S): 'Lecturers go for a post graduate certificate in learning... the philosophy there is to make lectures more interactive and move beyond the traditional didactic lectures'.

Nevertheless, when academics were asked whether experiential learning methods are embedded as part of plans set by the school to deliver pharmacy courses, academics answered that there is no enforcement to apply these approaches by the schools. They added that application of such approaches is totally a personal effort by academics who are interested in applying them. Furthermore, academics mentioned that the RPSGB sets clear subject guidelines defining the framework of what the learning outcomes of an MPharm programme should be, but does not specify the learning approaches that schools should follow in order to achieve these outcomes. So the learning approaches applied will depend on academics' choices, who are given the freedom to decide how to deliver their courses and which approaches to apply, thus,

resulting in having these approaches applied by some academic and in some modules only.

A1(S): *'No I think it's more of a personal effort by the tutor; we try to do what is best for our course. The school sends us on teaching courses where you get ideas but there is no enforcement to apply it, it's more of a trial an error where you apply it and next year you build on it and improve it and make it better each year'.*

A6(P): *'It's a personal effort by the module leader... it's largely down to the individual members of staff and how passionate they are about using alternative learning methods'.*

However, it was noted during the interviews that, at a personal level, there is a lot of enthusiasm among many pharmacy academics to make learning more interactive with students and focus on the development of their skills, and no notable differences were noted among the younger and older generation of academics regarding this point. Several academics mentioned that they even try to run lectures in more interactive ways that involve more student engagement. Some academics gave examples as encouraging students to take actions and be proactive rather than just identify problems, or sparking responses in students and engaging them in discussions and active decision making. Sometimes academics encourage students to think about who should be involved in a discussion and let them go out and talk to other professionals and get their feedback. These among other examples are done as a personal initiative by academics to make learning more interactive and help in the development of students' skills besides their knowledge.

A4(S): *'I stress on their ability to go and find information by themselves from papers and background reading, not just for developing the skills of self learning but also to develop their ownership of the subject and making it interesting'.*

A10(P): *'...we try to get them into positive decision making. We teach them that they have to be able to choose and have to be able to justify it... we encourage them to explore patients actively'.*

6.5. ISSUES INFLUENCING THE IMPLEMENTATION OF EXPERIENTIAL LEARNING ACTIVITIES AT PHARMACY SCHOOLS

During interviews, academics pointed out that teaching at pharmacy schools is mostly a mixture of didactic and innovative learning as explained earlier in Sub-Section 6.4.1. Academics mentioned that application of either approach varied according to differences in personality of academics, number of students, and the modules themselves in terms of their level, nature of subject and knowledge compactness. Furthermore, academics pointed out the role of funding in this regard.

Regarding academics' personality, academics mentioned that the traditional approach to teaching could be sometimes related to the personality of tutors since some academics prefer to teach in traditional ways giving students a lot of theory and facts. Some of those academics who prefer traditional approaches might argue that the value of experiential learning methods in building students' knowledge is questionable at many instances and that there is no substitute to a good direct lecture to build students' knowledge; other academics see that experiential learning approaches require them to invest more time where some might be a bit lazier or less willing to invest their time for such approaches. On the other hand other academics are more flexible and open to changes and interaction with students and believe that innovative approaches to learning are an excellent way of learning and motivating students. Nevertheless, it is worth pointing out here that no major differences were noted among the older and younger generation of academics with regards to these points that influence the application of experiential learning activities at pharmacy schools, where they both appeared to share their general points of view.

A8(S): '...it's never something to save time, it would be definitely less work for me to lecture, so some might be a bit more lazy to take this approach'.

A14(P): *'...some academics still teach in a didactic way, in the traditional way which they have always used, perhaps the same way they were taught 20 – 30 years ago, while others try to bring in more progressive and innovative methods trying to engage students...'*

Sometimes applying traditional or experiential learning approaches can also be related to the number of students, where the larger the number the higher the chances of traditional teaching with lesser interaction and collaboration. Academics mentioned that the reason for not applying experiential learning approaches is often due to the large number of students in a pharmacy cohort which usually ranges between 80-120 students, and sometimes reaching 190 at some schools. These numbers make it rather difficult to apply experiential learning to small groups of students under facilitation of academics. Such an issue was more evident among the higher ranking pharmacy schools in which a higher number of students enrol; therefore, teaching in the first year or two is predominantly didactic even at these schools.

A8(S): *'...we haven't got enough small group teaching as much as we wish to have really just because of the large numbers...'*

A17(S): *'The problem is that we have upwards of 100 students in our first year and second year, which makes it incredibly difficult to make lectures interactive... It's such a large number; I think the numbers alone sometimes prevent you from doing a fully interactive session'*

The modules themselves were also mentioned to influence the choice of experiential learning methods. Modules can vary in terms of their level, nature of subject and knowledge compactness. Regarding the level of modules, it was noted that experiential learning approaches were generally more applied in senior years in the higher level modules than in early years. In terms of the nature of subject, academics mentioned that some subjects in pharmacy lend themselves more easily to experiential learning approaches than other and these in general are the practice-related courses as opposed to the science-related ones which are generally less flexible like pharmacology, for example, which gives the tutor less room to apply experiential learning. As for the knowledge compactness, academics mentioned that the

more the amount of knowledge required to be included in a course the harder it is to embed experiential learning approaches. In general, academics mentioned that pharmacy curricula are already demanding and academics are under a lot of pressure to deliver a lot of knowledge to students making interactive teaching not possible at all times.

A2(P): *'...you can't take the whole curriculum and provide it through PBL or a professional approach.... Some parts of the curriculum lend themselves very well to PBL and others have to be taught'.*

A5(P)RI: *'...pharmacy schools are under a lot of pressure to deliver too much in the programme'.*

As for funding, it was also mentioned as an important factor that determines the extent to which experiential learning could be applied at pharmacy schools. Academics mentioned that at many instances pharmacy schools are not funded to have small group teaching or other aspects that support the application of experiential learning, where such approaches generally require more funding than traditional teaching.

A5(P): *'We are not funded to have small group teaching... so we have to kind of go into the blended approach of where we select different methods but I'd like to see more PBL embedded within the modules... get it throughout the years'.*

A8(S): *'We do appreciate the value of small group work, it's just having the resources to do that'.*

6.6. CONCLUSION

This chapter presented an analysis of the findings related to the second theme regarding application of experiential learning methods at pharmacy schools in the UK. The analysis presented views of academics regarding how experiential learning is applied at schools, and showed the multiple learning activities involved in its application. The chapter also showed that application of experiential learning methods is mostly a personal effort by academics who are interested in applying them, and therefore a significant amount of didactic teaching

still takes place. The chapter concluded with academics' views regarding several issues that influence the implementation of experiential learning activities within pharmacy schools.

Several points relating to this research questions were identified under Theme Two. Pharmacy academics are familiar with several experiential learning approaches, especially EBL, CBL and PBL which were found to be the most commonly applied ones at pharmacy schools. The application of these experiential learning approaches aims to help students engage in problems that reflect real-life situations, and, thus, relate their knowledge to practice whilst they develop a range of skills. To achieve this, students at pharmacy schools engage in several innovative learning activities as part of their experiential learning experience. Here, students are provided with various problems that relate to real-life situations, and are divided into groups under the supervision of academics who act as facilitators rather than lecturers. Students are also provided with the proper learning facilities and time to tackle these problems. However, certain issues, primarily including lack of funding and the large amount of knowledge required to be delivered in the curricula, were mentioned to impede the application of experiential learning approaches. Additionally, it was noted that pharmacy schools in general encourage the application of innovative learning activities, and that most academics were personally enthusiastic about applying these activities. However, pharmacy schools do not enforce the application of innovative learning activities. Accordingly, the application of experiential learning methods at pharmacy schools does not take place across all modules in the programme; their application is limited to some modules by some academics who are personally interested in applying them, and, therefore, there still is a significant amount of didactic teaching available at a number of schools.

CHAPTER SEVEN: DATA ANALYSIS

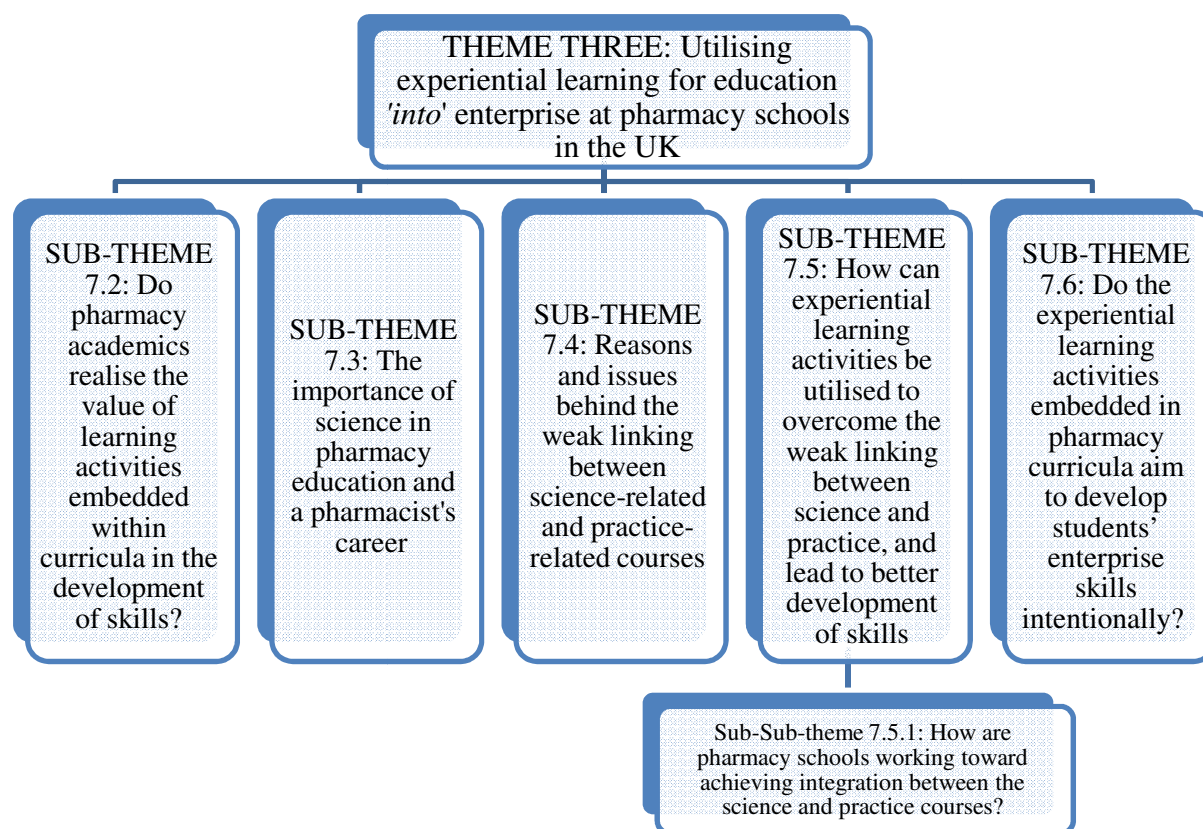
ANALYSIS OF THEME THREE: UTILISING EXPERIENTIAL LEARNING FOR EDUCATION ‘*INTO*’ ENTERPRISE AT PHARMACY SCHOOLS IN THE UK

7.1. INTRODUCTION

The previous chapter described academics' views related to the application of experiential learning and the activities involved in its application. The previous chapter also discussed academics' opinions regarding the extent to which the application of experiential learning is supported at pharmacy schools, as well as barriers and issues that might influence the application of its different approaches within pharmacy schools. However, do pharmacy schools relate the application of experiential learning to the development of enterprise skills? Is the development of students' enterprise skills done intentionally and included as part of the assessment plans, or do students develop their skills unintentionally as part of the learning process without having them assessed or considered by academics? And what issues might influence the development of students' skills during the educational process?

This chapter answers the previous questions through discussing the third theme in the analysis of this research, which is about utilising experiential learning for education '*into*' enterprise at pharmacy schools in the UK. The analysis brings forward academics' opinions about enterprise education and the significance of the educational process in developing students' enterprise skills; this is done under five main sub-themes included in the thematic flowchart in Figure 7.1, where each of these sub-themes is discussed next in detail.

Figure 7.1.: Thematic flowchart for Theme Three.



7.2. DO PHARMACY ACADEMICS REALISE THE VALUE OF LEARNING ACTIVITIES EMBEDDED WITHIN CURRICULA IN THE DEVELOPMENT OF STUDENTS' ENTERPRISE SKILLS?

Before discussing whether academics are aware of the value of embedding experiential learning activities in pharmacy curricula in the development of students' enterprise skills, pharmacy academics were asked whether the concept of enterprise education is a familiar one at their schools and whether there is a general understanding about the concept or its application. It was clear from discussions with academics that there is no general understanding of the concept of enterprise education in the sense referred to in this research. Academics in pharmacy schools generally relate the concept of enterprise education to entrepreneurship education or more specifically to concepts of management and starting up and running of new businesses, and consequently the development of entrepreneurial skills.

Several academics related the concept to management courses that some pharmacy schools offer in coordination with business schools as part of the MPharm programme at their schools. Only one academic mentioned that he was familiar with the concept of enterprise education, otherwise none of the academics related the concept to generic transferable skills that are essential for all graduates in all contexts.

A14(P): *'Probably not, probably if you haven't explained what you meant by it at the beginning I would have gone down the business route, more toward innovation and entrepreneurial skills'.*

A16(P): *'I probably wouldn't use the word enterprise... enterprise to me means business and management, and we don't teach management here whatsoever, but we do pharmacy practice skills for the skills they would actually need in practice'.*

Nevertheless, several academics stressed that the development of students' transferable skills which are necessary for them in their future careers does take place as part of the educational process, but this is not referred to as enterprise education at pharmacy schools. As discussed in Sub-Section 6.4.2, there is a lot of enthusiasm among academics to engage students in the learning process and making the teaching more interactive, for example academics mentioned that they encourage students to present, negotiate, write proposals, interact with patients, research references, tackle problems and get involved in other sorts of interactive activities. Academics pointed out that such activities that take place as part of various experiential learning methods are applied not only to build students' knowledge in an interactive way, but also to develop a wide range of their transferable enterprise skills, however, such activities do not take place under the term of enterprise education.

A8(S): *'...we think of enquiry based learning as a way of developing lots of generic skills which are absolutely essential for students in their workplace as the communication skills, team skills, oral presentations they have to do and the report writing and also database searching skills...'*

A14(P): *'...students will have more cases which they will resolve in groups, which is probably aligned with... I guess by that we encourage them to be better learners, take part in workshops, work in groups...'*

Furthermore, academics pointed out that besides developing students' skills, pharmacy schools are now increasingly interested in integrating a professional identity in the educational process. Students should not learn only for the purpose of gaining knowledge and skills, but should be able to see further how the knowledge and skills they develop would shape their future professional lives. That way, students can develop a better understanding about which career path they wish to go for and what they would need to develop to go for that path. For this purpose, pharmacy schools are increasingly focusing on embedding professional problems into modules where students will be expected not only to resolve the problems but also go through the steps that a pharmacist would actually go through in real-life so that they could live the experience.

A2(P): '...when we were designing the course and how things will sequence over four years, the emphasis was to integrate problem solving skills and professional identity skills and the professional components of every module from the beginning'.

A10(P): '...we have attached the portfolios to professional activity credits... because you can't actually demerit behaviour... Students are also credited for participation in university activities, any contribution toward the community, any voluntary work or work that they do because it all contributes to their professionalism...'.

Nevertheless, pharmacy academics in both science and practice fields agreed that there has been a growing emphasis in pharmacy education on clinical practice rather than science in the past years, and that there are more efforts being invested to enhance students' clinical and practice backgrounds and skills through the educational process. In this regard, academics pointed out that experiential learning activities are generally more applied in the practice-related courses (as pharmacy practice and therapeutics) than in the science-related ones (as pharmaceuticals and chemistry), which means that students complete their studies with better clinical and practice-related skills than science-related ones. Furthermore, this issue is preventing students from building an holistic understanding about the value of the science and how it fits into the practice that they learn.

This issue was raised by all academics in practice and science fields, however, academics teaching the science-related courses were especially concerned about how this issue has affected the quality of their courses and their graduates (A15(S): *'I sometimes get surprised that we are reducing so much on sciences. We need science to a great extent and even to support the practice. Science is equally important'*). This, however, does not mean that academics underestimated the value of clinical knowledge and skills for pharmacists. On the contrary, academics mentioned that the growing clinical emphasis in pharmacy education came to restore the image of pharmacy which was declining at a certain time (as will be discussed in Sub-Section 7.4.1, and accordingly emphasise the active role of pharmacists in the health care profession as patient advisors and counsellors by placing more emphasis on clinical and practice aspects. Academics stressed that, as opposed to pharmacy technicians and nurses for example, pharmacists are expected to have deeper knowledge about drugs and all issues underlying them, and if pharmacists do not maintain that knowledge they will lose their respect among other health professionals.

A6(P): *'The focus so far is predominantly on practice... So at the moment I think the skills delivered are being delivered out of context and the students can't see how they are relevant to being a pharmacist'*.

A8(S): *'I think students try to compartmentalise their science knowledge. They think it's the practice knowledge that they need to carry on with, not the science, and I think we have to make sure that they understand the need for integrating both, it's a whole package'*.

7.3. THE IMPORTANCE OF SCIENCE IN PHARMACY EDUCATION AND A PHARMACIST'S CAREER

All academics, in practice and science-related fields, agreed that pharmacy profession needs pharmacists with a strong clinical background, but they also agreed that pharmacists need a strong scientific background that links and integrates with the clinical one, especially that the science comprises a significant part of pharmacy education. Accordingly, academics talked

about the need to place more emphasis on incorporating more experiential learning approaches as PBL, EBL and CBL into the science-related courses in ways that relate practice-related courses to science-related ones, so that students can see how the practice relates to the science and how it is built on it instead of seeing them as two separate things which is the case for many pharmacy students nowadays. Academics believed that such emphasis should help in developing more confident and skilful pharmacists.

A1(S): *'...doctors will ask you questions and you have to have that scientific background! Not that you can pluck an answer from thin air...'*

A10(P): *'...so we're actually trying to put the science behind it because it is the key to what we do. We have to keep the science, to be a pharmacist you have to be a scientist...'*

Academics also added that in pharmacy education it is always important to keep in mind that it is the science that makes pharmacists special or unique among other professions. This issue is important, especially nowadays in light of the growing knowledge of other professionals in the health care sector about various drug matters; there are a lot of overlaps between the different health professions in the real-world and the picture is not clear cut; like for example doctors and nurses prescribe, pharmacists can prescribe, and all have varying degrees of diagnostic skills. Despite that the educational process does not often emphasise the importance of science, academics mentioned that pharmacy education should not give up on the science since it is essential for the uniqueness of pharmacists. Academics stressed that when it comes to the science of pharmacy, especially pharmaceuticals, it is only pharmacists who have the knowledge in that unique area, and maintaining that knowledge will give pharmacists the monopoly of their practice.

A4(S): *'...it's science at the end that gives pharmacists the monopoly of practice, and whether a pharmacist decides to work in industry, hospitals, or retail he will still need that strong scientific background...'*

A5(P): *'...it is the science what makes pharmacists different from the healthcare professionals; they are the scientists. That is really the centre to the role'.*

A13(P): *'...I think they will always need their pharmaceutical skills and formulations and dispensing because I can't think of anybody else in the team who can fulfil that role...'*

7.4. REASONS AND ISSUES BEHIND THE WEAK LINKING BETWEEN SCIENCE-RELATED AND PRACTICE-RELATED COURSES

The previous section showed that pharmacy academics highly valued the importance of scientific knowledge in a pharmacy degree and considered it as essential for the uniqueness of pharmacists in the real-world health profession. Nevertheless, this value is often underestimated in the educational process where academics pointed out that pharmacy schools generally focus more on making learning more interactive in the practice-related courses and emphasise more on developing students' skills in clinical contexts. Academics were asked to explain reasons behind the weak linking between science and practice; several issues were discussed and will be detailed in the following paragraphs.

7.4.1. APPROACHES FOLLOWED IN UPDATING PHARMACY CURRICULA WHEN THE MPharm PROGRAMME WAS FIRST INTRODUCED IN THE YEAR 2000.

Academics in general agreed that the science and practice-related courses are taught separately to a large extent and that students cannot relate the two of them together.

A8(S): *'In our current degree I would say they are largely taught separately, but we are making a lot of efforts to integrate the science into the practice in the new MPharm course'.*

A14(P): *'I think the science is still needed but it has to be science that is relevant to the practice... the science we teach has to be applied and relevant to practice and it's still not'.*

Academics mentioned that pharmacy education has gone through a lot of developments during the last 25 years in order to enhance the image of the pharmacy profession. One of the academics was keen during the interview to discuss how these

developments of pharmacy curricula have impacted the quality of students and their ability to demonstrate skills. His views were considered essential as he has worked in pharmacy education for more than 20 years. Furthermore, this interviewee is currently the director of undergraduate studies for pharmacy and the director of learning and teaching for the faculty of health at the university he works for, and has close connections with regulatory bodies as the RPSGB. Accordingly, his views were considered valuable and discussed in this point in the following paragraphs.

Up until the mid-eighties of the last century the vast majority of the practice content and context in a BSc pharmacy degree was likely to be delivered during the pre-registration year; the one-year experience that students got during their pre-registration was heavily relied on to develop pharmacists' clinical skills that were in use back then and which were not very great. Pharmacists still presented with a low level of consultation skills and clinical skills, which called for introducing some changes into pharmacy education that basically included more clinical content and context in the learning process. Another major change was introduced around the year 2000 when the pharmacy degree qualifications became taught in the MPharm programme. A four-year masters level programme was introduced as opposed to the previous three-year BSc one, where again more clinical content and context were added into the curricula. However, in the process of introducing the MPharm programme around the year 2000, what happened is that a lot of pharmacy schools added an additional year of clinical content and context to their previous three-year BSc programme to provide the new four-year MPharm programme. This resulted in students studying more information without being able to see how the science, which was the main component of the previous BSc pharmacy degree, relates to the practice that has grown to receive more emphasis.

A11(P): *'...some schools stuck one year something on top of their three year course of pharmaceutical science and others adopted a more integrated approach and were more practice-focused...'*

A11(P): *'...you need the science in order to build the practice on top. But I think in practice this just doesn't happen! What happens is, you get science and then you get practice, and they don't link. It's very difficult for students to see how the science applies to what they do'*

7.4.2. PRACTICE-RELATED COURSES LEND THEMSELVES MORE EASILY FOR EMBEDDING EXPERIENTIAL LEARNING APPROACHES, WHILE THIS IS MORE DIFFICULT TO ACHIEVE IN THE SCIENCE-RELATED COURSES

Academics mentioned that the practice-related courses lend themselves much more easily for incorporation of interactive learning activities than the science-related ones mainly because the earlier are more flexible and more holistic. Academics mentioned that the science-related courses are generally more rigid and condensed with knowledge making it rather difficult to embed interactive learning activities in them. They added that the main objective in science courses is to build students' scientific knowledge and not their skills, and that embedding interactive learning activities through experiential learning would mean compromising the amount of knowledge students are getting.

A4(S): *'If you are leaving the hard facts of science up to PBL then you can't be sure they're getting everything that they need'*

A7(S): *'In science we're much more concerned that they have the basic rounding skills and knowledge that they can apply. We're not really concerned about their confidence and communication'*

A19(P): *'In practice yes, all academics apply innovative learning approaches. But I'm not so sure if it's applied as strongly in pharmacology and pharmaceuticals'*

7.4.3. MORE EMPHASIS ON HIRING TEACHER-PRACTITIONERS FROM PRACTICE THAN FROM INDUSTRY

Pharmacy academics pointed out that pharmacy schools generally invest part of their resources to hire teacher-practitioners from retail and hospitals. Those academics help

students link their learning to the clinical and practice aspects of pharmacy, thus, contributing to making learning in practice-related courses more innovative and interactive. However, none of the pharmacy schools mentioned that they hire teacher-practitioners from industry and research, even though one school is currently working on establishing some links with a pharmaceutical company to access data and cases from the real-world.

A6(P): 'All our teacher-practitioners are from practice; either community or hospitals... we don't have any formal links with industry teacher-practitioners but that may change... the school is trying to recruit people who have dual roles'.

A16(P): 'All the academics teaching clinical modules are practitioners but those teaching the science are only academics, they don't actually go beyond the academic field into the real-world'.

7.4.4. MOST PHARMACY GRADUATES END UP WORKING IN PRACTICE-RELATED JOBS, AND THE EDUCATIONAL PROCESS DOES NOT FOCUS ON PREPARING GRADUATES FOR JOBS IN INDUSTRY OR RESEARCH

Another main reason as to why there is an emphasis on applying experiential learning in practice-related courses in particular is the fact that about 90% and sometimes more of the pharmacy school graduates end up working in the retail sector, and about less than 5% in hospitals. This makes practice more relevant to more than 90% of the pharmacy graduates once they start their careers, and at the same time makes pharmacy students more enthusiastic about practice-related courses because they can better see their relevance to their future careers. Careers in industry nowadays do not appeal to pharmacy graduates as they used to around 20 years ago, and the numbers of placements available for pharmacy students in industry are also less than they used to be especially with the growing number of pharmacy students and limited number of industrial manufacturers.

A14(P): *'99% of our students will end up in retail and hospitals and the remaining 1% would go to different areas including research, industry or others. Industry is no longer available on the pharmacy students' radar anymore...'*

A17(S): *'I would say that students are more ready to interact in practice courses simply because I think they see more relevance to the pharmacy practice parts of the course, and so sometimes get more enthusiastic about actually getting involved... unfortunately if you get them in the lab... they're less likely to be asking questions about it... simply because they can't ever see themselves doing that'.*

Accordingly, pharmacy academics mentioned that the teaching approaches followed in science-related courses are mostly traditional and do not motivate students to be interested in these courses or consider jobs in industry and scientific sectors. Academics mentioned that pharmacy education does not seriously consider preparing graduates for jobs in industry or research sectors mainly due to the reason mentioned earlier about the very low percentage of graduates wanting to work in these sectors, whom some academics referred to as being ill-served by the educational process.

A7(S): *'We don't prepare our graduates for a job in industry, so they don't have the skills for it... we are aware of the fact that the minority in our new course will be ill-served unless we do something about it...'*

A5(P)RI: *'But maybe people will gravitate to the part of the programme that is more interesting and maybe the dispensing is a more technical part that they enjoy less, perhaps we should make it more interesting'.*

7.5. HOW CAN EXPERIENTIAL LEARNING ACTIVITIES BE UTILISED TO OVERCOME THE WEAK LINKING BETWEEN SCIENCE AND PRACTICE-RELATED COURSES, AND ACCORDINGLY LEAD TO BETTER DEVELOPMENT OF STUDENTS' ENTERPRISE SKILLS IN SCIENTIFIC CONTEXTS? WHAT ARE PHARMACY SCHOOLS DOING IN THIS REGARD?

As explained earlier, a lot of pharmacy schools face the issue that a large part of the science is taught in a traditional way and that the practice and science parts are taught separately. Accordingly, students are unable to see how the science relates to practice or how it fits into their future careers. This issue is affecting graduates' ability to demonstrate a range of

enterprise skills, especially in scientific contexts, in addition to affecting their understanding of the uniqueness of their profession.

Fortunately, there is a growing interest among pharmacy schools to maximise the linking between the science and practice-related courses. Most academics saw this linking as essential and important to help students realise how both science and practice relate to one another, and how they both apply in the real-world. Pharmacy academics mentioned that several pharmacy schools in the UK have or are currently in process of updating their MPharm courses to include improvements that incorporate more integration of science into practice from the beginning of the programme.

A6(P): 'The focus so far is predominantly on practice and that is something we will change when we introduce our new MPharm course in 2012... all the science modules will have a pharmacist on them to try to relate the science into the practice and instil in the students how the skills they learn are actually relevant to pharmacy practice'.

A8(S): '...we are designing a new MPharm course and we are very keen to get the science integrated into the practice , so we are doing our best but we're probably not there yet'.

In this regard, academics mentioned that unlike the science-related courses, practice-related courses lend themselves more easily for embedding experiential learning. Consequently, academics saw that instead of embedding experiential learning as part of the science-related course, which might not be possible at many times, pharmacy schools had better utilise experiential learning activities already embedded in the practice-related courses in ways that bring the science into these activities and accordingly integrates it into practice. This integration can be achieved through providing students with problems/scenarios that link the science with the practice and engage students in learning activities that help them see how the science is related to the practice and to their future careers as well.

Such integration is seen by academics as a more efficient and feasible way for developing the science-related knowledge and skills of students rather than embedding experiential learning into the science-related courses per se. This way pharmacy graduates will be expected to have strong clinical knowledge and skills while at the same time be able to relate all that to a strong scientific background as well.

A2(P)RI: '*...we succeed more in integrating the science courses in the practice ones rather than applying innovative approaches in pure science courses. I think we've done quite well in doing that in pharmaceuticals course where we integrated more case and problem based learning. It's harder to do that in pharmacology and chemistry courses...'*

7.5.1. HOW ARE PHARMACY SCHOOLS WORKING TOWARD ACHIEVING INTEGRATION BETWEEN THE SCIENCE AND PRACTICE COURSES?

The approaches that pharmacy schools are following for integration between science and practice courses varied between pharmacy schools. In this regard, academics talked about applying inter-disciplinary learning which involves integrating knowledge from different disciplines within pharmacy into one course. For some pharmacy schools this integration was described at higher and more complex levels that involve combining several modules in one big module instead of offering each module separately, which makes the value and benefits of inter-disciplinary education more evident. On the other hand, most pharmacy schools run their MPharm courses on a modular basis while applying inter-disciplinary education to some extent, where it was noted that inter-disciplinary education at those schools is often not utilised in the best possible ways yet.

For schools that apply more complex inter-disciplinary learning, the approach here was described by academics as an integrated one that integrates the whole pharmacy curriculum. Here, the pharmacy curriculum is divided into themes that link together throughout the academic year, and the pharmacy materials are subdivided into those

themes, thus, allowing learning to become more contextualised in a way that helps students better understand why they learn what they learn. So instead of having a pharmacology module and a chemistry module for example, they will both be incorporated under a theme on drug development so that students could learn the pharmacology and chemistry of drugs within that aspect. The credit hours of the multiple modules incorporated under themes will be combined to represent one large module where the credit hours of that module could reach sometimes 120 credit hours. So in order to pass students will have to be able to link the requirements of all the themes in modules and see the relationships between them, which should help students understand why they have to learn what they learn.

A5(P): *'With the new curriculum... we've created bigger modules... we have a team for each module including at least one pharmacist and one scientist...'*

A10(P): *'The emphasis here is contextualisation of everything we teach, so we're moving away from teaching things in little modular boxes... and in those we have themes that link throughout the year'*.

On the other hand, most pharmacy schools described their application of integrated education as a simpler and less complex one than the contextualised approach. Here, students became involved more in integrated learning as they progressed in their studies. For those schools, the MPharm programme is run on a modular basis where students enrol in several small modules in a year. However, in this approach students are still exposed to activities, projects, assignments or case studies where they are expected to bring in some integration of what they learned in earlier years or in other modules; for example the course work and assignments for a module in the third year would involve relating the knowledge that students learned in earlier years to that specific module. Academics mentioned that this integration should help students

develop their conceptual thinking and establish links while realising that their knowledge should not be compartmentalised but rather pulled together and integrated.

A3(S): 'It's very difficult within a modular based course... What we try to do is perhaps within projects and within extended practicals, is to try and bring some integration for the writing up of reports that requires students to know their first year, second year, work or to draw it into their final year'.

Examples of integrating science and practice modules described by academics include integration between the pharmaceuticals and pharmacy practice modules. Here, students will be given problems/scenarios where they will have to consider pharmaceutical formulations and dosage forms, while at the same time consider aspects of pharmacy practice that are related to developing skills of communicating those formulations to patients in terms of how a certain formulation could affect patients and the kind of advice they would need to hear; these scenarios also focus on raising students' understanding of how the chemistry of a drug would affect its preparation in pharmacy practice. This integration encourages students to think not only of the drugs and their clinical indications, but also consider the specific case of each patient and relate it to the most appropriate dosage form, formulation and preparation method and dosing regimen that would go best with the specific case of each patient.

Another example of integration is relating the science of pharmacology to practice and clinical courses. This is important since pharmacists are expected to be able to refer to the basic science of drugs in order to understand how drugs work, what their side effects are, what causes these side effects, and how they interact with the body and other medications, which are all part of the basic science of pharmacology. Understanding such aspects about the science of pharmacology should help pharmacists bring in all that scientific knowledge and relate it to various clinical cases

where they would have to consider, for example, patients, diseases, diagnosis and history.

A1(S): *'...I try to bring in a bit of pharmacology and chemistry into the pharmaceuticals course...I want them to think more about other issues as well related to the product and to numeracy. So students would have to know everything from what's going into a drug, how it's working, what it's used for, how you would tell the patient to use it and then how you will make it... We're teaching them science for the sake of what pharmacists need to know and not for the sake of science'.*

A6(P): *'... all the science modules will have a pharmacist on them to try to relate the science into the practice and instil in the students how the skills they learn are actually relevant to pharmacy practice'.*

A19(P): *'We use PBL to integrate between pharmacology and pharmacy practice; I think it's less applied in pharmaceutical science'.*

However, as discussed in Section 6.4.2, application of such integration is entirely up to the tutor. Therefore, academics mentioned that this integration is not applied by all tutors in all modules but rather by those who are interested in applying them. So while students are gaining integrated knowledge in some aspects of pharmacy, this might not be applicable to all aspects as the integration is not applied throughout the programme.

It is worth mentioning here, that besides applying inter-disciplinary learning to various degrees at pharmacy schools, some academics also talked about applying inter-professional learning. Here, pharmacy schools work to integrate the learning process of pharmacy with that of other professions, usually nursing, midwifery, dentistry and to a lesser extent medicine. The web is used sometimes by some schools where students are given case studies which they have to discuss with students from other health professions over web-based forums. This form of learning was not found to be widely applied across pharmacy schools, and several academics mentioned that the benefits of it are not yet well established in pharmacy. Nevertheless, academics

mentioned that students generally enjoy inter-professional learning and it can be a useful way of learning if carried out in the right way. Furthermore, academics mentioned that this form of learning can be very useful in developing students' communication skills and their confidence in dealing with other professions, in addition to enhancing their conceptual thinking skills through problems/scenarios that draw on different aspects related to different professions in real-life.

A4(S): 'We do something called INTERACT, which is a web-based forum where they are given a case study and have to discuss that with the nursing students, pharmacy tech. students and physiotherapy students'.

A19(P): 'We embed PBL and CBL with inter-professional learning, so we'll have inter-professional learning groups with nursing students, dentistry and medicine'.

7.6. DO THE EXPERIENTIAL LEARNING ACTIVITIES EMBEDDED IN PHARMACY CURRICULA AIM TO DEVELOP STUDENTS' ENTERPRISE SKILLS INTENTIONALLY? AN EXAMINATION OF ASSESSMENT METHODS AND LEARNING OUTCOMES

This chapter and the previous Analysis Chapters highlighted a number of experiential learning activities that take place during the pharmacy education process, and also pointed out pharmacy academics' awareness of the value of these activities in developing students' enterprise skills despite that some still prefer to apply the traditional didactic approaches in teaching. This section will address whether the range of enterprise skills that pharmacy students gain through engaging in experiential learning are developed intentionally and incorporated as part of the modules' learning outcomes, and if so how they are being assessed, or unintentionally where students get to develop them as part of the learning process without having them included as part of the learning outcomes or assessed. This section will discuss these matters from the point of view of academics and describe the situation in pharmacy schools in the UK.

Academics explained how pharmacy schools set the learning outcomes of their MPharm programmes. In this regard, they mentioned that the RPSGB is very clear about its accreditation standards that have to be met by pharmacy schools in the UK. The standards include addressing a range of transferable skills in the educational process, but the society does not specify the educational approaches for developing or assessing the skills nor does it specify the contexts in which they should be developed even though a lot of these skills can only be developed in clinical contexts. Academics were clear about having to meet the society's standards, and therefore the pharmacy curricula at pharmacy schools have been developed to address formally the development of the transferable skills required by the RPSGB as part of the learning outcomes of some modules. Academics added that this issue is increasingly being attended to, especially with the upcoming new standards for pharmacy education that will be issued by the RPSGB.

A5(P): 'I think it's all changing with the new standards for pharmacy education and it will definitely be much more around skills and competencies, and to be able to show they have the confidence to do something... We have always intended to do that and with the accreditation we have to do that anyway'.

A3(S): 'We do have methods of assessment which try to encourage those transferable skills'.

Nevertheless, all academics agreed that there is still room for focusing on the development of a wider range of pharmacy students' enterprise skills, especially that many of the enterprise skills required by the RPSGB are centred around clinical and patient-care skills. Academics also agreed that further improvements in the ways these skills are developed and assessed should be introduced; so far the ways for developing these skills are still not structured enough, especially that embedding experiential learning is often not included as part of schools' philosophies nor is it sponsored by pharmacy schools. Some academics said that the ways in which skills are developed and assessed at their schools is still poor and learning is

often still knowledge driven; additionally, academics said that skills' development and assessment is not applied across the modules but rather in some modules only.

A6(P): *'The way we assess is often knowledge driven... the kind of skills you mentioned we don't assess across the modules... as a whole the assessment we do focuses mainly on knowledge and a small amount of the application of knowledge'.*

A5(P)RI: *'We've written our new MPharm course to meet the new requirements of the indicative syllabus proposed by the society and we've included the development of those skills in all the modules, but certainly a lot of them are patient focused and therefore can only be developed and assessed in a clinical context only'.*

Academics were asked to explain how they assess students' enterprise skills where they described a number of summative and sometimes formative assessments. Most academics mentioned that the quality of issues identified in any type of work submitted by students is often considered in assessments; academics also consider students' rationale behind choosing an approach followed in resolving a problem/scenario and the ability of students to evaluate their own work. Furthermore, academics said they look at students' presentation, negotiation and communication skills in assessment of presentations (A5(P): *'We try to give feedback on all aspects of the presentation'*). Exams would generally include a range of questions varying between multiple choice questions, describing, explaining, analysing and discussing questions. In case of essay questions, students' analysis, critical thinking and problem solving skills are considered to some extent by some academics when marking questions in exams. Academics mentioned that even when students fail to provide the right answer in open-ended questions in exams, they might still be credited some marks if they approached the questions logically and thought about them, especially in the more complex discussion questions that lend themselves more easily to the construction of an argument. In this regard, academics mentioned that some academics apply marking grids/ matrices/ schemes where part of the marking credits are dedicated to the issues described, where application of such grids was noted to be mandatory at some schools and for some modules and optional in others. Yet,

several academics expressed a view that in many cases, the way exams are marked is still rigid, where in many cases academics end up looking for the right words in an answer (A6(P): *'We have a small number of essay exams and there the students will get credit for structuring an answer in a logical way, but most of the other exams you are literally looking through the answers for the right words'*).

Furthermore, when resolving problems/scenarios, academics mentioned that students are required to identify their learning gaps and seek the knowledge needed to resolve the problems. To achieve that, students will need to communicate with the right people, and identify the appropriate references and how to research them in order to assess the identified problems, resolve them, provide a solution to them and assess whether their suggestions have worked or not. Also, students are credited for the way they manage group dynamics in group work where this could be done by assessing the flow of work in the final report and the ability of the group to meet the deadlines. In reports and research projects students are assessed for their written communication skills as well as the quality of literature surveyed and their ability to argue with or support that literature.

A4(S): *'...it's not just about having a right or wrong answer, I like to give them credit for taking initiative or coming out with a hypothesis or a discussion point that nobody else came up with, also when they find references that nobody else found... so they take credit for initiative and original thinking because it's a reflection of how they take pride of their work and that they've actually taken the effort to give me something other than a regurgitated lecture'*.

A11(P): *'Team skills and working with others are both implicit and explicit in the course and you won't get through the course if you don't do it... Numeracy and computer literacy, you couldn't possibly go through pharmacy without that. Time management is embedded implicitly, because if you don't have time management you can't get through the course'*.

Academics also pointed out that the assessment criteria of students in pharmacy schools generally become higher as the students' progress in their studies. Pharmacy schools apply general assessment descriptors that describe what students should gain at the end of each

year/level of the programme, where for example those descriptors may start by gaining knowledge and then move on to creatively using this knowledge and applying it.

A2(P): ‘...in the 1st year they can fail or miss out on a major prescription but provided everything is all right they pass, but by the time they get to their second year they can’t pass if they make a major error, so this assessment is very stressful for them because the standards are so high’.

A4(S): ‘Critical assessment of skills is obviously more important in the higher years where the learning outcomes are about critical evaluation and setting priorities’.

To support assessment, some academics talked about utilising self-assessment and group-assessment techniques. Besides being useful in helping academics in the assessment process, these assessment methods are useful in developing students’ skills by allowing them to reflect on their experiences as well as on others. Academics mentioned that self assessments should help students identify their strengths and emphasise them, as well as point out their weaknesses and work on overcoming them. Through writing portfolios, which are quite common in pharmacy schools, students get the opportunity to develop those skills and assess themselves by writing about various situations that they face in their daily lives and mentioning how they handled them, learned from them on personal and professional levels.

Peer assessments on the other hand were not found to be widely applied. Academics mentioned that peer assessments are useful in group projects where each member of the group is required to assess another student and provide his/her evaluation based on clear criteria. Peer assessments are related to developing students’ professionalism as well as their critical and analytical thinking, objectivity, communication and confidence skills; they also seem to help students to remain focused around achieving certain objectives and criteria when evaluating other people’s work, and think about the best ways of communicating both the positives and negatives to others, while at the same time handling feedback/comments about their work from others in a professional way. This approach is receiving more attention

by schools but academics did not seem to be certain about the extent of its efficiency or objectivity yet.

A6(P): *'It's funny in peer assessments, some students just like to praise and give a lot of compliments and others are very critical'.*

A10(P): *'...students have to justify their peer assessment and toward the end we find that students do really get quite objective in their assessments'.*

From all the previous discussions, it becomes evident that pharmacy schools consider the development of a range of students' enterprise skills in assessments. Furthermore, the assessment criteria applied vary according to the module outcomes where generally higher assessment criteria are applied as the students' progress in their studies. However, the assessment process is still weak in several ways and several issues need to be addressed as assessment of skills in particular is often not formally addressed, but rather depend on tutor's decisions and judgements.

7.7. CONCLUSION

This chapter discussed pharmacy academics' views regarding the extent to which experiential learning approaches as utilised as means for education 'into' enterprise. Several points relating to this research questions were identified under Theme Three. This chapter has pointed out that pharmacy academics realise the value of applying experiential learning in the development of students' enterprise skills, and gave a lot of examples as to how experiential learning activities are utilised for the development of a wide range of these skills. Nevertheless, academics pointed out several gaps in this regard, where they talked about the issue of weak linking between the science-related and practice-related courses, and the fact that the development of students' enterprise skills does not take place in an organised manner and that most of the skills are developed in clinical contexts only. The focus on including the development of students' enterprise skills as part of the programme learning outcomes is still

weak. So far, the focus is mainly on skills that are developed in clinical contexts only. Here, academics stressed the importance of scientific knowledge in a pharmacists' career, and the fact that the science gives the pharmacists the monopoly of the practice. Consequently, issues contributing to the weak linking between the practice-related and science-related courses have been discussed, where the lack of inter-disciplinary and integrated learning was emphasised. Yet, efforts by several schools to integrate between the science and practice and minimise the gap between them were also discussed, where the value of this integration in the development of students' skills, knowledge and professionalism was pointed out. Finally, the chapter discussed academics' views about the assessment methods applied at pharmacy schools where it appeared that these assessments are still largely subjective and informally addressed even though a range of enterprise skills are considered in the assessment methods applied. Therefore, more organisation and management by schools, in order to ensure more systematic development of skills that covers all aspects of pharmacy applications, is needed.

CHAPTER EIGHT: DATA ANALYSIS

ANALYSIS OF THEME FOUR: EXPLANATIONS/ JUSTIFICATIONS PROVIDED BY PHARMACY SCHOOLS REGARDING THE LOW LEVEL OF GRADUATES' ENTERPRISE SKILLS

8.1. INTRODUCTION

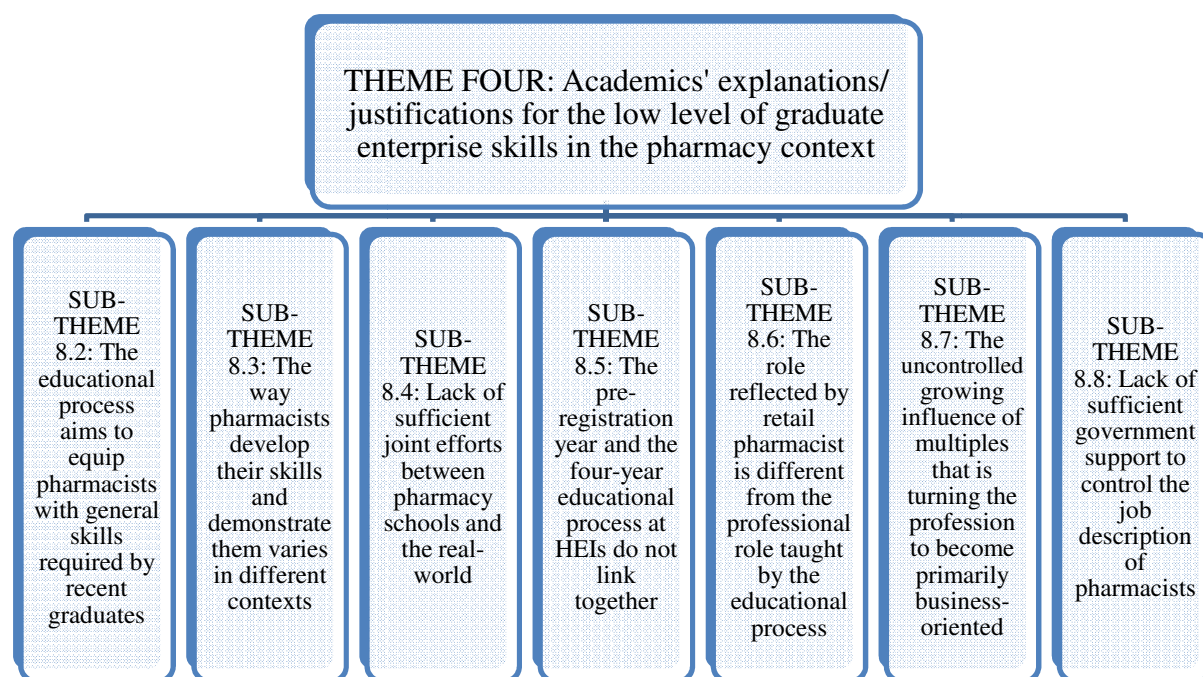
Besides the low level of linking between the practice-related and science-related courses during the educational process, which academics saw as a contributing factor to the low level of enterprise skills demonstrated by pharmacy students, academics also talked about other contributing factors. The issue of low linking between the science and practice in pharmacy education was described in the previous chapter, where academics described approaches to overcome this weakness through inter-disciplinary learning that could be applied by pharmacy schools alone. However, the other factors contributing to the low level of graduate skills, which will be discussed in this chapter, were not seen by academics as factors related to internal weaknesses in the educational process but rather to factors that cannot be controlled by HEIs. This section will discuss these factors under the fourth theme in the analysis of this research, which is about explanations/ justifications provided by pharmacy schools regarding the low level of graduates' enterprise skills. These factors are seen as uncontrollable by HEIs either because they simply cannot take place as part of the educational process during HE, or because the application of these issues is dependant upon receiving sufficient support from real-world organisations and the government outside HEIs.

The uncontrollable factors provided by academics as explanations and justifications for the low level of graduates' enterprise skills are organised in this chapter under seven main sub-themes, where each of these sub-themes refers to one of these factors. The first factor has to

do with the reason that pharmacy schools work to equip students with general enterprise skills that are necessary to have by any recent pharmacy graduate, and not skills that would be expected from a chief pharmacist. The second justification discussed by academics was related to the contexts in which students develop their skills, where academics believed that development of skills is context-specific to some extent; i.e. varies between HE and the real-world. The third point highlights the lack of sufficient support from real-world organisations to support students' exposure to the real-world workplace during their studies, where academics emphasised the need to establish more joint efforts between pharmacy schools and those real-world organisations. Then academics talked about reasons related to the pre-registration year, which they did not see as complementary to the learning process in several ways. Furthermore, academics discussed their disappointment about several aspects related to the retail sector, which are affecting pharmacists' ability to demonstrate a range of enterprise skills, especially that the retail sector forms the largest sector in pharmacy. The sixth factor raised by academics is related to the uncontrolled growing influence of multiples which is driving the profession to become primarily business-oriented as described by academics, whereas the seventh and last factor discussed in this chapter is concerned with the lack of sufficient government support to control pharmacists' careers in the real-world. Following is a detailed discussion about each of these factors.

Each of these factors/sub-themes is included in the thematic flowchart in Figure 8.1, and each is discussed next in detail.

Figure 8.1.: Thematic flowchart for Theme Four.



8.2. THE EDUCATIONAL PROCESS AIMS TO EQUIP PHARMACISTS WITH GENERAL SKILLS REQUIRED BY RECENT GRADUATES, AND ACCORDINGLY GRADUATE DAY-ONE PHARMACISTS AND NOT CHIEF PHARMACISTS

Pharmacy academics mentioned that the aim of the pharmacy educational process is to produce pharmacists who have a wide range of knowledge and the required level of skills to pursue various career paths, whether in retail, industry, hospitals, research or academia. Academics mentioned that this is one of the main advantages of studying pharmacy where pharmacists gain the benefit of choosing among different career paths and will always have the option of changing their career path available in the future if they wished to do so. Academics explained that this perspective means that the objective of an MPharm degree is not to produce specialised retail, industry or hospital pharmacists, and definitely not to graduate chief pharmacists, but to produce those day-one pharmacists who have the general knowledge and awareness about pharmacy and its options and have the necessary level of skills expected from recent graduates that would enable them to choose among the available

career options, and accordingly specialise in the area they choose by developing the relevant job-specific skills and knowledge needed by the sector they choose through engaging in real-life experiences.

A1(S): 'The whole point in pharmacy is not going out with a whole lot of knowledge; it's also having the basic level of skills to be able to identify what to do, which is probably why –as you identified from talking to employers– many graduates are not very useful'.

A2(P)RI: 'We are not producing chief pharmacists, we're not producing people who can be on call in out-of-work hours, we're not producing people to be consulted about real patient problems. We're producing day-one graduates who are expected to have the skills you would expect from a day one graduate'.

Therefore, the educational process focuses on developing a wide range of transferable skills in pharmacy students; skills that are needed in all types of careers and that are necessary for them to take the first step in the real-world where those skills should be expected to further develop and sharpen.

8.3. THE WAY PHARMACISTS DEVELOP THEIR SKILLS AND THE WAY THEY DEMONSTRATE THEM VARIES IN DIFFERENT CONTEXTS

Academics explained that the development of enterprise skills depends on the environment in which they are developed, or in other words is context specific. Therefore, HE could develop students' enterprise skills, but the way and attitude in which these skills are developed and demonstrated in the context of HE differs from that of the real-world. For example, academics mentioned that pharmacy schools face this same challenge when they get new students. When these students first enrol in a pharmacy school, there is obviously a transition period that schools need to account for. So when students first enrol, they are expected to further enhance the skills they probably already have, like communication skills, team skills and analytical skills. and gradually develop them during the four-year educational process in the context of HEIs. The same thing should be expected when students graduate and move to

the real-world; therefore, academics said that employers should also account for this transition period and allow students time to build their skills gradually in the context of a real-world organisation.

A13(P): *'I actually think it's kind of that hiatus where you actually have to transfer your skills into the new environment and context, and I think that whenever you transfer you are actually very vulnerable as a learner and quite needy'.*

A6(P)RI: *'...so no matter how much skills we develop in an academic context they would still lack the exposure to service provision, the context would never be the same as when you're facing a patient'.*

Accordingly, it is not until people get the opportunity to demonstrate the skills in a specific context that they will actually be able to develop those skills up the level required by that context. Yet, two academics agreed that there is a small number of skills that are actually quite easy to develop and, thus, can be developed completely in an educational context. Those academics mentioned that there should be no reason preventing HE from developing these skills in an educational context, and these include skills like numeracy for example.

A1(S): *'Well for things like numeracy it's quite easy, and if they haven't got the right answer we'd look at the steps applied, and how they thought about it'.*

A5(P): *'It depends on what skills, because for some of them we should really develop quite clearly. I think like numeracy there is no reason why we can't do that. I think that's kind of basic level stuff that the university should deal with, so that when graduates leave the university it is not a problem'.*

However, for the development of most enterprise skills, the role of real-life engagement cannot be ignored. In this regard, academics mentioned that most skills, like ability to show confidence and assertiveness, cannot be developed up to the level expected by employers until graduates actually engage in the real-world workplace. This issue brings us to the next point about the need to have more cooperation between pharmacy schools and the real-world to achieve this engagement.

8.4. LACK OF SUFFICIENT JOINT EFFORTS BETWEEN PHARMACY SCHOOLS AND REAL-WORLD ORGANISATIONS FROM ALL SECTORS IN ORDER TO INCREASE STUDENTS' EXPOSURE TO THE REAL-WORLD WORKPLACE DURING THEIR STUDIES IN AN INTEGRATED MANNER

As a suggestion to improve the pre-registration training, academics mentioned that the educational process should become more integrated allowing students to engage more in the real-life workplace alongside their education. However, academics mentioned that such integration would require more collaboration between pharmacy schools and the real-world organisations and that this collaboration is often lacking.

A14(P): 'I would say in an ideal world the degree would be integrated; we would give them the module and then they can go out and apply what they learned in practice and then come back again to be assessed on that at the end of that module. So I think it should be a joint partnership'.

A1(S)RI: 'I do agree that students are not exposed enough to real-life situations... the proposed modernising pharmacy career basically says do more of an integrated approach...'.

This lack of collaboration is made worse, especially in light of the growing demand of real-world organisations – especially in the retail sector – to receive financial returns to place pharmacy school students on placements in their organisations, which is causing pharmacy academics a lot of frustration. Academics mentioned that their schools are not usually funded for these placements, and therefore stressed the need for having more support from real-world organisations in different sectors of pharmacy. Academics said that real-world organisations can play an important role in supporting pharmacy schools to develop their curricula in ways that allow students to become more exposed to the real-world during their HE. That way, students will get a better chance of developing their skills in real-world contexts up to levels that may be closer to employers' expectations.

A6(P): 'Students need to go into the workplace to develop their skills, but a lot of employers want to get paid to have our students, and yet they want the students to have these skills...'.

A6(P)RI: *'...in this school we have struggled with community pharmacy because they want to get paid and they don't see much benefit in training students that they might employ in the future...'*

To elaborate more, academics emphasised the need for engaging students in the real-life workplace during the four-year educational process in an integrated manner as opposed to the one year pre-registration current approach. This pre-registration year takes place either as a separate year at the end of four-year studies, or as a sandwich course where students do their pre-registration year in two six-month intervals at the end of their third and fourth years of study respectively. Academics saw that pharmacy education does not integrate the real-world workplace into the educational process sufficiently, and at the same time the real-world organisations are not providing enough support for pharmacy schools to achieve that. Academics added that exposure to real-life during studying should help students develop the theory in HE while applying it in parallel in the real-world, which should result in better sharpening of their enterprise skills and understanding of the application of their knowledge, in addition to enhancing the professionalism of graduate pharmacists.

A5(P): *'I think we've still got a long way to go to develop pharmacy education. I think we have focused too much on knowledge... it's a challenge for us to think about 'how we can change the way we teach and assess?' So that the knowledge is there... but actually the emphasis becomes much more on how that is applied. I see that is something which is a challenge'*

A20(S): *'Toward this our philosophy is going to be that students should be spending more time in the workplace during doing their degree programme, we're looking at the prospect of integrated pre-reg...'*

In this context, academics also added that the educational process does not expose students enough to communication with doctors in real-life environments. Academics saw this lack of communication as an essential point since some of them argued that it might be affecting graduates' ability to establish important communication networks with doctors when they graduate. Here, academics mentioned that the educational process engages students in role plays during their studies, where they get to interact with acting doctors, but it is not until

students actually get to engage with real doctors in real-life contexts that they could develop the skills of communicating with them professionally and eliminate the fear and lack of confidence that pharmacists generally feel in real-life when communicating with doctors. Therefore, academics mentioned that they would like to see more interaction between pharmacy students and medics in the future during the educational process. Again, academics expected this engagement to help pharmacists develop a range of enterprise skills up to a higher level, and accordingly build better communication networks with doctors and patients in the future.

A1(S): *'I think where we struggle when we teach pharmacists is the fact that we don't actually talk to people like medics, we don't get that much patient exposure when they go out on placements, and until they start their pre-reg. they won't be talking to any medics and that can be quite intimidating'.*

A2(P)RI: *'It would be nice to have more communication with medics during studies... it would also be nice to put pharmacy and medicine students together and allow them to interact'.*

8.5. THE PRE-REGISTRATION YEAR AND THE FOUR-YEAR EDUCATIONAL PROCESS AT HEIS DO NOT LINK TOGETHER AND BOTH HAVE DIFFERENT OBJECTIVES

Academics mentioned that students on an MPharm degree get the opportunity to thoroughly engage in real-life situations only during their pre-registration, but added that this pre-registration takes place separately from the students' four-year educational process. Academics were not completely supportive of the fact that the pre-registration year takes place separately from the educational process – whether this year takes place in one or two intervals – and saw that this year does not link with the educational process in many ways. Ideally, academics agreed that the pre-registration year should be integrated within the educational process so that both could go side-by-side, however, this is not possible for the time being, especially in light of the lack of funding in this area as explained in the previous

section (A2(P)RI: *'I don't think anyone disagrees with integrating the pre-reg into a 5-year degree, but we do have a problem with funding...'*).

Academics mentioned that the pre-registration year is intended to support the educational process, but there is a difference in culture between HEIs and real-world organisations which is reflected in having different objectives regarding the pre-registration year by each. Academics explained that, unfortunately, real-world organisations see the pre-registration year merely as a business opportunity to recruit pharmacy schools' best students to bring them money; academics also added that these real-world organisation start to focus on embedding their culture and way of thinking into pre-registration students rather than helping them develop their skills and realise the application of their knowledge in the real-world as well as assess their abilities in this regard, which are the objectives of the pre-registration year.

Academics believed that students do not see the pre-registration year as a continuity of their learning but rather as a first step toward getting a job. Employers did not deny the importance of considering employability by students at this stage, but said that students should also think about how they can build their knowledge and skills during pre-registration, and understand how they could fit what they learned into the real-world, which they do not. One of the academics even mentioned that academics feel as if they lose their students in that year.

A1(S)RI: *'...big chains want to train future employees, not pre-reg. students, and want to put them into their own way of thinking... and that is one of the biggest hurdles'*.

A2(P)RI: *'I believe students lose a lot of the aspiration, enthusiasm and motivation they have during the pre-reg. year, no matter how much they're good or bad they become worried about the drug tariffs and all those issues and become kind of process orientated'*.

A5(P)RI: *'Pre-registration is intended to help the educational process, but there is a difference in culture between an HEI and a working institution'*.

8.6. THE PHARMACIST'S ROLE REFLECTED BY THE RETAIL SECTOR IS DIFFERENT FROM THE PROFESSIONAL IMAGE THAT THE EDUCATIONAL PROCESS TEACHES STUDENTS

This point highlights some of the academics' concerns regarding issues in the retail sector of pharmacy that could possibly form barriers in face of the pharmacy profession and the ability of pharmacists to demonstrate enterprise skills.

Academics were generally concerned about several issues that were specifically directed at the retail sector of pharmacy. Academics believed that these concerns have affected the roles of retail pharmacists and consequently pharmacy students – who look up to those pharmacists as role models – about the value and uniqueness of their professional role among other health professions. These concerns were generally related to the roles that pharmacists assume in this sector which seemed to lack sufficient communication with patients and doctors; academics were quite concerned that retail pharmacists are generally work in comfortable well-paid jobs without performing their roles in the best possible ways. These concerns of academics were exacerbated by the fact that the retail sector forms the largest part of the pharmacy profession, and around 90% of pharmacy graduates choose to work in retail, which means that this sector has a major influence on the image of the pharmacy profession.

Academics mentioned that the role of retail pharmacists as part of the health teams is not very evident in the marketplace even though the educational process strongly emphasises this role and equips the students with the necessary knowledge and skills for it. Academics were rather disappointed that the image reflected by the retail sector is different from the professional image that the educational process reflects about practice. Academics believed that this difference is affecting students' perceptions about the profession since these students look up to the current retail pharmacists as their role models. Unfortunately, academics said they can see a lot of pharmacy graduates going for careers in retail mostly with the attitude of getting

well-paid and comfortable jobs without focusing enough on their main role and contribution to the health sector as pharmacists.

A1(S): *'... certainly the community sector needs re-engineering... I don't think we do our selves a good PR image. We need more people who care'.*

A6(P): *'Our students don't really have role models... I think it would be really helpful for pharmacy students to see 4 or 5 role models who are really confident and assertive, but we don't have that and so you get that lack of confidence that moves from generation to generation'.*

Academics mentioned that the current image reflected by retail pharmacists is more of dispensers who work in comfortable and well-paid jobs, and is not a very positive image in terms of being health care advisors. Retail pharmacists should work to establish positive relationships with patients as health advisors; for example they are expected to double check with patients if they are currently on any medications that are contra-indicated with a prescribed medication, and provide customers with advice about how and when to take prescribed medications while ensuring that the patient's age and health conditions will not impose any risk in that situation; pharmacists in retail are also responsible for checking all prescriptions that come in and discussing them with doctors if and when they have any concerns about them. However, academics said that such essential communication networks with patients and doctors are not evident in the retail sector.

A14(P): *'...the problem is that in reality 95% of a pharmacists job is about dispensing and pharmacists should get out of that and start talking to patients, it's happening but still'.*

A17(S): *'The majority of pharmacists who are in the community makes up what, 70% of the pharmacy population, go through day after day without making any sort of clinical decision, or having any clinical input'.*

In this regard, academics talked about the importance of talking to patients and how much those patients value interaction with pharmacists and do not really want to go to the pharmacy only to be handed a bag of medications. Patients need to feel that they have been

well taken care of and be assured that they have been handed the best medication for their case. Therefore, academics pointed out that it is not enough for retail pharmacists to think in terms of ‘is this medication right?’, but go beyond that to think in terms of ‘is this medication right for this particular patient?’, which is a focus that needs to be attended to more by retail pharmacists according to academics.

A1(S): *‘...they have to know that they have to think about the patient and I don’t think pharmacists do that. A pharmacist can make a patient feel better you know’.*

A14(P): *‘...we’ve got to have a consultation module which is all about doing proper consultation with the patients and asking them the right questions from a GP type of consultation rather than a traditional one...’.*

Academics were also concerned about the lack of communication channels between retail pharmacists and doctors who share a significant and important part of the health-care sector. Academics attributed this lack of communication to the lack of confidence of pharmacists who are sometimes scared of discussing issues with doctors or feeling that the doctor must always know best, which is something that academics face even with pharmacy students during the educational process. So unless pharmacists are faced with a clear mistake, like a clear overdose for example, they will not talk about it. This lack of communication is a barrier to assuming an active role in the health care sector because it will allow pharmacists to hide in the shadow of doctors and act as suppliers of drugs rather than assuming an active role as health advisors. As a suggestion to help students overcome this barrier, several academics supported having more communication channels established between pharmacists and doctors as part of the educational process, which is expected to help in breaking communication barriers between doctors and pharmacists and help in establishing more effective communication networks between both sides once pharmacists graduate; this issue was discussed in more detail in Section 8.4.

A1(S): *'...there's always the stereotype 'the doctors know best and why would we go out and challenge them', but I can see that when we talk to doctors they are quite happy to see things from our angle'.*

A1(S)RI: *'Lack of confidence comes from the traditional thinking that we are subservient to the medics. It's like a theory that we don't know as much as doctors and the doctor is always the king... Communication maybe has to do with a combination of factors of how much a pharmacist is taught and how much he practices'.*

8.7. THE UNCONTROLLED GROWING INFLUENCE OF MULTIPLES (CHAIN PHARMACIES) THAT IS TURNING THE PROFESSION TO BECOME PRIMARILY BUSINESS-ORIENTED

Academics were also disappointed by the growing influence of large chain pharmacies that look at pharmacy mainly as a business without considering the most important issue of having patient care as a main interest. In this regard, academics talked about the value of community pharmacy which used to be called so because it resembled the pharmacist in the community, where everyone in that community would know and trust the pharmacists there, which is important to facilitate establishing communication networks and valuable health advice. However, chain pharmacies nowadays are very much business oriented and do not give enough emphasis on the professional role of pharmacists as part of the health sector.

Academics believed that the problem of chain pharmacies is made worse with the quite large numbers of locum pharmacists whom those pharmacies recruit. These locum pharmacists do not get involved in organising patient records at the pharmacy or building relationships with patients. Academics mentioned that the focus of locum pharmacists in many cases is unfortunately to cover a few hours at one pharmacy or more and get paid in return for that. Those pharmacists are not concerned enough about talking to doctors or patients in the community who might be taking the wrong form or dose of the drug, which is an issue that is contributing to distorting the image of retail pharmacy.

A1(S)RI: *'...multiples are the ones who destroyed community pharmacy, so pharmacists are no longer doing what they're supposed to... and I guess pharmacists are equally to blame with the number of locums, they get paid very well just to check prescriptions and they don't build customers or patient relationships and that's the multiple's fault'.*

A5(P)RI: *'...but now with the large business in multiple pharmacies, pharmacists will have to finish a lot of prescriptions and work on the MURs, profits... and different aspects of the business, so the roles might not be clinically oriented and focusing on patient care and advice about medications as we hope to be'.*

8.8. LACK OF SUFFICIENT GOVERNMENT SUPPORT TO CONTROL THE JOB DESCRIPTION OF PHARMACISTS

Additionally, academics mentioned that there should be more support from the government to the pharmacy profession by placing regulations that enforce the active role of retail pharmacists in the workplace. Academics explained that such regulations would be similar to those governing the roles of GPs in the society and would be expected to enforce the active role of pharmacists in the health sector instead of pharmacists' roles constrained by essentially the organisations they work for, which in many cases in retail are business-oriented. Academics also suggested that such regulations would facilitate establishing communication networks between pharmacists and doctors as well as pharmacists and patients, which are seen as essential components of pushing the profession forward and improving its image in the marketplace.

A1(S): *'The NHS kind of killed us because we went from makers to suppliers against the doctor's prescriptions'.*

A6(P)RI: *'I guess the department of health should start looking at community pharmacists... offering contracts to pharmacists in community pharmacy similar to those offered to GPs, and as part of that they're required to train pharmacy students and get paid for that...'.*

8.9. CONCLUSION

This chapter presented an analysis of the findings related to the fourth and last theme regarding explanations/ justifications provided by pharmacy schools regarding the low level

of graduates' enterprise skills. Academics discussed several issues that cannot be controlled by HEIs alone. So even when HEIs work toward developing students' enterprise skills, such issues would still impede the development or demonstration of those skills in graduates in the real-world. Here, several points relating to this research questions were identified under Theme Four. Academics stressed that recent graduates should be allowed a transition period once they start their jobs/careers in order to develop their enterprise skills in real-world contexts, especially that HEIs equip graduates with the knowledge and skills needed by any degree holder (day-one graduate), and not with the specific knowledge and skills needed to assume certain positions in an organisation. Furthermore, academics mentioned that real-world organisations do not support pharmacy schools in providing placements for students during their studies, where such placements are seen as the best approach for developing students' enterprise skills. This issue is made worse by the lack of internal and/or external funding for pharmacy schools to support placements for students. From another perspective, many academics argued that the ability of recent graduates to demonstrate enterprise skills is influenced by the roles assumed by pharmacists in the real-world. These pharmacists are seen as role models and in many cases they are not assuming the main roles of pharmacists involving patient-care and health advice. Last but not least, several academics were frustrated by the fact that the focus in real-world pharmacy organisations is often business oriented, especially in large multiples (chain pharmacies), while the focus in the educational process is on patient-care and health provision, where such an issue is made worse by the lack of government support to control the description of the roles of pharmacists in the real-world.

CHAPTER NINE:

DISCUSSION

9.1. INTRODUCTION

Several studies are available on enterprise education that examine the different types of enterprise education as well as their relation to the development of the different types of enterprise skills. There are also many studies into experiential learning which describe its various approaches as PBL, EBL, CBL and their objectives. Furthermore, the application of experiential learning for the development of students' enterprise skills has been encouraged in different parts of literature. In this study, the focus is on examining the development of enterprise skills for pharmacy students in the UK HEIs, and investigating the significance of the contribution of experiential learning approaches as means to education '*into*' enterprise. However, what is unique about this study is that it develops more understanding about *how* enterprise skills are developed and *how* experiential learning methods could be applied in ways that maximise their benefits in developing students' enterprise skills, especially that experiential learning approaches are increasingly applied by HEIs but have not succeeded so far in enhancing employers' satisfaction about the level of enterprise skills demonstrated by recent graduates. Through this investigation, the research looked into modes of applying these learning approaches and the obstacles facing their application in order to come up with suggestions for better application of experiential learning as means for education '*into*' enterprise.

The purpose of this chapter is to integrate the four themes identified in the analysis of the findings of this research study into the objectives of this research, and relate the findings to available literature while highlighting any major differences or contributions. Accordingly,

each of the following four sections represents one of the objectives of this research, and discusses its relevant research questions. In doing so, the chapter discusses the researcher's interpretations as to how each of these objectives relates to the findings of this research on the one hand, and to the available literature on the other. Then, this chapter provides a brief comparative summary of the research objectives as they relate to the opinions of academics, employers and students.

9.2. DISCUSSION OF OBJECTIVE 1: TO ESTABLISH THE VALUE OF THE CONTRIBUTION OF HEIs IN DEVELOPING MORE ENTERPRISING PHARMACY GRADUATES

With regard to this objective, questions were addressed to pharmacy employers, academics and students to get their views regarding the relevant research questions concerning these objectives. The following main points, listed as they relate to this objective's research questions, were identified:

- Pharmacy employers, academics and students all agreed that it is important to have graduates who are capable of demonstrating a range of enterprise skills.
- Enterprise skills comprising a range of generic transferable skills that are related to employability are all important for recent graduates.
- Pharmacy employers agreed that recent graduates are not presenting with a satisfactory level of enterprise skills. Academics showed some agreement with employers and added further comments regarding this point.
- Employers saw that the responsibility of developing enterprise skills is mostly their responsibility in the real-world. However, most of the academics saw that it is a shared responsibility between HEIs and the real-world.

- Students agreed that enterprise skills must be valuable for graduates, but added that real-life experience is important to evaluate the extent of that importance. Students also added that the responsibility of developing those skills should be a shared one between HEIs and the real-world.

A lot of studies and reports have confirmed the importance of having the ability to demonstrate a range of enterprise skills by HE graduates, and the importance of supporting graduates to develop those skills through the educational process (e.g. NSTF, 2000; Davies, 2002; CIHE, 2003, Rae, 2007a; Rae, 2010; Draycott and Rae, 2010). This point matches with the findings of this research as all employers and academics agreed that all graduates should present with a satisfactory level of enterprise skills. Academics also stressed that having enterprising pharmacists is important to support the image of the profession because knowledge on its own is not sufficient; it is important to have professional pharmacists who are capable of interacting efficiently with their environments.

There were no major differences in the range of skills emphasised by academics and employers where all appeared to be important. Yet, it might be valuable to point out here that employers in different sectors seemed to stress some skills more than others, but since the objective of this research was not to compare between the different sectors of pharmacy these differences can be regarded as indicative rather than being decisive. For example, hospital employers stressed the importance of confidence, communication, resourcefulness, ability to work in teams, organising and prioritising tasks, interaction, delegation and problem-solving. Employers in retail saw communication skills as essential to provide safe patient care and also focused on skills like management skills, customer care, confidence, responsibility, team skills, assertiveness and flexibility, while employers in industry stressed on skills like problem-solving, self-learning, responsibility, analytical skills, numeracy and confidence; they also looked at skills as

leadership, decision-making, ability to handle tasks and emergency situations, prioritisation and communication skills.

Regarding students views, some studies (e.g. Ward and Lee, 2002; Abate *et al.*, 2000) showed that students reported favourable attitudes toward the range of enterprise skills they get to develop through various innovative learning approaches; this study also showed that students valued enterprise skills and considered them essential for any graduates; however, students added that the extent to which these skills are important cannot be decided until they actually engage in the real-world.

Several studies have also showed lack of satisfaction among employers about the level of enterprise skills demonstrated by recent graduates (Lowden *et al.*, 2011), and other studies have examined these skills in the wider framework of employability skills and also showed that employers are not satisfied by the ability of graduates to demonstrate those skills (Cotton, 2001; AGR, 2008). In this study, employers have indicated that they are generally not satisfied by the level of enterprise skills demonstrated by recent pharmacy graduates, and mostly blamed HEIs for not preparing graduates for the job. However, employers indicated that pharmacy graduates have a good level of knowledge, but are not capable of relating that knowledge to real-life situations. Employers mentioned that the shift in the focus in pharmacy education has made pharmacists nowadays realise better their role as health advisors, but they still show a lack of both technical skills and generic enterprise skills even though the development of technical skills is mentioned to be easier than the development of enterprise skills (Perren, 2003). This, however, does not match with Cotton's (2001) comments about employers being generally satisfied with the level of graduates' technical skills, and generally not satisfied with their level of non-technical skills.

No studies were found investigating opinions of academics in HEIs regarding the low level of enterprise skills demonstrated by recent graduates. However, a lot of studies have considered the application of innovative learning approaches and experiential learning approaches in the development of students' skills (Long *et al.*, 1999; Martin *et al.*, 2008). Some studies have considered HEIs' efforts in developing graduate employability skills (Cassidy, 2006), and others have looked into the challenges of today's world which impose more responsibility on HEIs to embed enterprise into their curricula (Tiwari *et al.*, 2006; Rae, 2007a; Rae, 2008; Justice *et al.*, 2009; Rae, 2010).

In this study, academics showed understanding of the employers' views about the low level of graduate skills. However, academics mentioned that the responsibility of developing those skills is not the responsibility of HEIs alone; it should be considered as a joint responsibility between HEIs and the real-world, and, therefore, HEIs should not be blamed alone for the low level of graduate enterprise skills. This point was also supported by students who saw that enterprise skills should be developed by both HEIs and the real-world. These views match only to some extent with Jones' (2009) argument that the development of critical thinking, problem solving and communication skills takes part of the educational process and is implicit in teaching; this is because academics saw that the development of those skills cannot take place completely in an educational setting, and joint efforts between HEIs and the real-world are essential. Academics also provided other reasons explaining why they think employers are not satisfied by the level of skills of recent graduates; these points are discussed later on within the discussion of the fourth objective. Students also agreed with academics that the responsibility of developing enterprise skills should be a shared one between the real-world and HEIs, and supported integrating more real-life placements within the educational process to enhance students' development of those skills.

Despite being not satisfied by the level of skills demonstrated by recent graduates, a notable complaint from employers from all sectors of pharmacy in the marketplace was that graduates are too much clinically focused in the way they think and demonstrate their skills when handling situations. This complaint was seen as interesting because academics mentioned that the focus of the educational process was on developing students' skills in practice-related contexts much more than science-related ones, which was seen as a relevant point to the employers' complaint about graduates being too much clinically focused. This is probably because the clinical or practice-related context in which students' enterprise skills were developed influenced the way in which students demonstrated their skills; that is in a way that is too much clinically focused. Students agreed with this point to a large extent and mentioned that the educational process makes the practice-related courses more interesting to students, which is why students prefer these courses and engage in them more. This matches with Clanchy and Ballard's (1995) argument that the disciplinary knowledge that students learn while developing their generic skills will affect the way in which those skills are assumed, and also matches with Jones (2009) who saw that the development of generic skills is affected by the disciplinary culture in which they are developed.

Academics mentioned that the focus in the educational process on developing skills in practice-related contexts is mainly due to the fact that patient care is the central focus of a pharmacist's profession, and that more than 90% of pharmacy graduates choose to work in the hospital and retail sectors. This makes practice more relevant to more than 90% of pharmacy graduates once they start their careers, and at the same time makes pharmacy students more enthusiastic about practice-related courses because they can better see their relevance to their future careers. However, employers mentioned that there is much more to a pharmacist's career than pure practice in the real-world, and the educational process is not helping students see those other sides. Furthermore, employers from the industry sector were the least satisfied by the level of

skills demonstrated by recent graduates, which is probably because the industry sector needs scientific knowledge and requires skills that have been developed in a scientific context. In literature, the extent to which developing enterprise skills should be 'relevant' to the marketplace is still a matter of debate (CIHE, 2003). It is mentioned, however, that the objective of enterprise education should be to bridge between studying and working environments (Whiteley, 1995). Findings in this study imply that the more relevant the enterprise skills are to the marketplace the more the ability of graduates to engage in it. Findings show that graduates who are not exposed to situations that reflect real-life career situations during their studies are showing a lack of ability to demonstrate their enterprise skills in real-life contexts. This point was further emphasised by the fact that employers from the pharmacy industry section were the least satisfied by the level of graduate skills, while academics mentioned that the science and research-related contexts –which are the ones relevant to industry– are the least focused on in terms of application of experiential learning in the educational process.

Enterprise education has been a topic of growing importance during recent years, especially in light of the increasing challenges of today's marketplace (Knight and Yorke, 2003; McNair, 2003; Yorke, 2004; Rae, 2007a; Rae, 2008). As part of delivering enterprise education efficiently, Rae (2007a) emphasised the need for strong connections between enterprise education and employability even though this is expected to impose challenges on educational systems. Nevertheless, most of the literature discussing the importance of placements and real-work environments is in the context of entrepreneurship rather than enterprise education.

Accordingly, it can be argued that the enterprise education process in a disciplinary context should focus on the employment environment context in order to mirror the real-life of that

context, thus, enabling students to make sense of their studies and allowing them to relate and compare their experiences with the actual work environment. Such contextualisation that provides students with a reflection of real-world experience is seen in this research to help students demonstrate their enterprise skills at a level that is closer to the expectations of employers in the real-world.

9.3. DISCUSSION OF OBJECTIVE 2: TO DETERMINE THE EXTENT TO WHICH PHARMACY SCHOOLS IN THE UK HEIs EMBRACE THE CONCEPT OF ENTERPRISE EDUCATION

This objective was mostly explored through questions addressed to pharmacy academics. Yet, opinions of employers and students were also utilised at some points to show agreement or disagreement. The following main points related to this objective were identified and are listed as they relate to this objective's research questions:

- There is a lack of understanding of the concept of enterprise education among pharmacy academics.
- Academics mentioned that they work on developing a wide range of enterprise skills in students. This, however, does not happen in an organised manner and most of the skills are developed in a clinical context only.
- Academics mentioned that they involve students in interactive learning activities in ways that encourage them to develop their self-learning skills in addition to a range of transferable skills.
- The focus on including the development of students' enterprise skills as part of the programme learning outcomes is still weak; the focus is only on a small number of skills and even those are developed mostly in a clinical context.
- Academics mentioned that engaging students in real-life situations during the educational process is seen as the best way to develop students' skills, and added

that having more placements integrated within the learning process would help students develop their skills even more. This point was also supported by employers and students as well.

It has been highlighted in literature that the concept of enterprise skills could mean different things to different people, and for that reason it is very important to define what is meant exactly by this concept whenever using it (Draycott and Rae, 2010; Sewell and Dacre Pool, 2010). Many studies have also pointed out the confusion between enterprise and entrepreneurial skills when talking about enterprise skills in terms of generic transferable skills that are related to employability (e.g. Leadbeater and Oakley, 1999; Raffo *et al.*, 2000; Henry *et al.*, 2005a; Rae, 2007a; Jones and Iredale, 2010; Sewell and Dacre Pool, 2010). Consequently, the concept of enterprise education evolved during the past years from its limited focus on starting-up of new businesses to a more wide-ranging concept that considers relationships between HEIs, industries and the community in such ways that opens doors for new opportunities and allows for sustainability of HEIs' own autonomy (Gibb, 2002), and also to include developing enterprising people equipped with a wide range of transferable skills (Davies, 2002; Matlay and Westhead, 2005; McLarty *et al.*, 2010). Based on these developments in the concept of enterprise education, three main frameworks of this education were argued in literature including education '*about*', '*for*' and '*into*' enterprise where the latter aims at developing students' generic transferable skills (Hytti and O'Gorman, 2004).

The confusion pointed out in literature about the concept of enterprise education and enterprise skills is also highlighted in this research. It was clear from interviews with academics that pharmacy schools do not understand the concepts of enterprise skills and enterprise education. Academics related the concept of enterprise skills to the skills needed to start and manage new enterprises, and the concept of enterprise education was related to

separate management courses provided to pharmacy students through management schools to develop those entrepreneurial skills. However, academics mentioned that the educational process does focus on developing a lot of skills in students that are important for them in their future careers, but this does not take place under the umbrella of enterprise education. Academics also mentioned that they try to mimic the steps that pharmacists would go through in the real-world in order to build their professional identity.

Accordingly, despite that enterprise education is increasingly being applied as part of curricula development in several private and governmental business schools (Li and Matlay, 2005) with the aim of helping graduates to move on from education to working (Matlay and Westhead, 2005), it seems such application of enterprise education is still lacking in pharmacy schools, and possibly all vocational degrees, which supports Leitch's (2006) point that further research in the area of application of enterprise education is still needed.

Academics mentioned that they encourage students to think for themselves by requesting them to present, negotiate, write proposals, interact with patients, research references, tackle problems and get involved in other sorts of interactive activities. Such activities aim not only to build students' knowledge, but also to develop a wide range of their transferable enterprise skills. Fiet (2000b) stressed the importance of delivering enterprise education through processes that engage students in various classroom activities. The active role of academics in enterprise education has also been emphasised by Deakins *et al.*, (2002) who argued that academics should act as facilitators who help students to '*dissect, reflect, and learn*' from their experiences rather than focusing on a traditional role as lecturers. Yet, academics agreed that the emphasis in applying those learning activities is more evident in practice-related rather than science-related courses, so students have opportunities to engage in role plays with doctors and patients, solve cases around patient and medication problems and check

prescriptions, which are part of the practice-related courses, but do not get to engage with the same level of activity when doing experiments related to drug design, drug interactions and formula preparations, which are part of the science-related courses.

Academics described learning in science-related course to be more rigid and relatively more didactic. Despite contributing to the development of some important skills, Rae (1999) argued that traditional learning approaches are insufficient for developing the necessary skills needed for handling real-life situations. Traditional approaches have not been shown to support students in handling various real-world problems and situations since they focus on passive receipt of information that does not help in developing students' active participation and critical thinking as opposed to other innovative teaching approaches (Tiwari *et al.*, 2006).

Accordingly, within practice-related courses, students get to develop some enterprise skills as well as technical skills needed by pharmacists in clinical contexts, and that affects the way in which they assume those skills which becomes clinically focused, while their skills which are developed in science-related contexts remain under developed due to the more rigid and somewhat didactic learning approaches applied in the science-related courses. Furthermore, academics mentioned that this issue is a concern at pharmacy schools because it is possibly preventing students from building an holistic understanding about the value of the science and how it fits into the practice that they learn; however, in accordance with the findings of this research, this might also be preventing students from developing and assuming their enterprise skills in a comprehensive way that enables them to handle the different real-world contexts they might be exposed to in the future.

Furthermore, the current low level of learning activities embedded in science-related courses at pharmacy schools goes against what literature supports about the necessity of delivering enterprise education in an holistic manner in order to achieve its aims and objectives (Gibb,

2006; Rae, 2004). Weinrauch (1994), Gorman *et al.* (1997) and Bechard and Toulouse (1998) also agreed to this and supported a collaborative model that includes a mixture of knowledge, skills and attitudes.

Rae (2004) supported collaborative efforts to deliver enterprise education within different contexts of non-business backgrounds as the creative industries, and the same has been argued for science, engineering, and even sports disciplines. However, the lack of awareness of the concept of enterprise education alongside its lack of application across all courses in the discipline could explain why pharmacy schools do not have collaborative efforts between their departments or formal bodies that discuss the delivery and objectives of enterprise education across the school, which is leading to students' skills being developed out of context at most times. Such collaborative efforts between departments have also been suggested by several institutions in literature to support models for enterprise education at HEIs (Broad, 2007).

As pointed out by Banta (1999) and Martell (2007), HEIs are under growing pressure from accreditation agencies to have proper assessment measurements that show how successful their learning programmes have been in helping students meet the learning outcomes. In pharmacy programmes, academics pointed out that pharmacy schools set their learning outcomes to meet the guidelines set by the RPSGB which include addressing a range of transferable skills in the educational process. However, the society does not specify the educational approaches for delivery or assessment of those skills nor does it specify the contexts in which they should be developed even though a lot of them can only be developed in clinical contexts. Accordingly, the curricula at pharmacy schools are developed to address the development of the transferable skills required by the RPSGB 'intentionally' as part of the learning process. Here, a number of innovative learning activities are included as part of

the learning delivery as explained earlier, and this is done only in some courses and by some academics.

However, when it comes to assessment, interviews with academics showed that such innovative approaches are not included in the assessment of the learning process; this issue has been pointed out by Pittaway *et al.* (2009) where they argued that the application of innovative learning methods during the delivery of learning does not necessarily mean application of these methods in the assessment of learning, and highlighted the need for further research investigating the relationship between learning delivery and learning assessment in regard to application of innovative methods.

Academics described assessment at pharmacy schools as being poor and mostly knowledge driven. Applying traditional assessment methods has been argued in the literature not to be sufficient for addressing the learning outcomes that need to be addressed (e.g. Ramsden, 1992; Boud, 1995; Brown *et al.*, 1997; Race, 2003). This also supports Pittaway *et al.* (2009) argument that the applied assessment methods in HE might be too traditional and not suitable for assessing the intended learning outcomes that academics should be measuring. Furthermore, Rust (2002) pointed out that HEIs do not relate the learning outcomes with the assessment tasks and learning opportunities available for students. In this regard, it was noted that assessment in pharmacy schools did not follow a structured approach that defines what is used to assess what. Academics did not have a policy or strategy for informing students about how the different assessment methods will be used to assess their learning outcomes, thus, often making assessments informal and largely subjective. Instead, students were familiar with a number of assessment methods, and were sometimes familiar with the general assessment descriptors of what is expected of them at the end of a year/level, but did not know which assessment methods will be used to assess their learning outcomes, including

their knowledge and skills. Such an issue could possibly lead to losing a significant value of learning that is related to developing students' skills, since setting proper learning development strategies that guide informal learning could contribute to better development of skills (Conner, 2009).

With regard to the process of developing students' skills, academics were asked to describe how they believe students develop their skills. This aspect is very important, especially that effective assessment is essentially related to understanding how students learn (Pittaway and Cope, 2007). Here, academics focused on the importance of exposing students to the real-world through placements that would be integrated within the learning process; that way students can develop their knowledge and at the same time see its application in real-world contexts. Such parallel association between theory and practice is seen to enhance students' confidence and ability to communicate and demonstrate a range of transferable skills. This point was also emphasised by employers in the marketplace who said that recent graduates usually lack some of the essential skills as communication and ability to demonstrate confidence; however, they pointed out that as students engaged more in real-life their ability to demonstrate those skills improved notably. Furthermore, this point was also emphasised by the students themselves. Some of the students interviewed in this research mentioned that they were lucky to be offered the opportunity to work in a pharmacy through paid or unpaid placements while studying; they added that these placements have had a great impact on them since they gave them more confidence and ability to apply their knowledge, and also mentioned that following their experience in the real-world they found themselves to become better learners since they became more efficient in deciding their learning gaps and understanding why they learn what they learn. Students also added that the extent to which enterprise skills are important cannot be decided by students until they actually engage in real-life. The significance of engaging students in real-life during their studies is mostly

discussed in the literature in the context of entrepreneurship education and the development of entrepreneurial skills rather than generic enterprise skills. However, even in the context of entrepreneurship education, Timmons and Stevenson (1985) saw that certain skills such as critical thinking, judgment, decision making, being up to responsibility, communication and others, can only be learned through participation in real-life situations.

9.4. DISCUSSION OF OBJECTIVE 3: TO ASSESS THE SIGNIFICANCE OF CONTRIBUTION OF EXPERIENTIAL LEARNING METHODS TO THE DEVELOPMENT OF ENTERPRISE SKILLS

- Pharmacy schools are familiar with several experiential learning methods. EBL, CBL and PBL were found to be the most commonly applied ones.
- Application of experiential learning methods at pharmacy schools aims at helping students engage in problems that reflect real-life situations, and, thus, help them relate their knowledge to practice whilst they develop a range of skills.
- Application of experiential learning methods at pharmacy schools involves application of several innovative learning activities. These have been divided by the researcher into six main aspects including tactics, learning environment, group work, academic facilitation, vehicles, and mode of application, which will be discussed in this section.
- Application of experiential learning methods at pharmacy schools does not take place across all modules in the programme; their application is limited to some modules by some academics who are personally interested in applying them.
- Pharmacy schools support interactive learning through trainings and workshops provided for academics, but do not force their application.

Pharmacy schools were seen to be familiar with the concept of experiential learning, where this type of learning was found to take place at pharmacy schools mostly through the forms of CBL, EBL and PBL. There are several discussions in academics literature arguing the relationship between these experiential learning approaches, and despite the fact that there are some pedagogical differences between them, they all share the main concepts of inquiry, dealing with problems/scenarios and student-led activities as central to the learning process (Savin-Baaden, 2007). Furthermore, these learning approaches also share the concepts of having tutors acting as facilitators who monitor the learning process, and using interactive and collaborative learning vehicles instead of directly transferring knowledge through lectures.

Yet, the ways those experiential learning approaches are applied varied widely between schools. This of course is expected as the application of various experiential learning methods has been described in many ways which is possibly due to the flexibility in the original experiential learning model set by Kolb (1984) where he proposed learning as a continuous process rather than a set of outcomes, and added that learners can start the learning process at any stage depending on the situation.

Barrows (1986) also viewed PBL as '*a genus for which there are many species and subspecies*' (p.485) and argued that a wide variety of educational methods and an endless number of approaches can be developed through different educational approaches in PBL. Walton and Mathews (1989) suggested PBL as a general pedagogical approach or philosophy rather than a teaching approach with a single unanimous way of delivery. Savin-Baden (2003) described PBL as a flexible and diverse approach that can be implemented in different ways among different courses and disciplines in different contexts, and Boud and Feletti (1997) both argued that PBL should not be perceived as a specific way of learning. Such

arguments also fit with other modes experiential learning approaches as EBL and CBL which can be delivered in an endless number of ways as well considering that they are very similar to PBL in many ways.

Yet, whichever approach is used to apply experiential learning approaches, the basic stages of this learning suggested by Kolb (1984) must be kept in mind; these include concrete experience, reflective observation, abstract conceptualism and active experimentation, where learning can be best achieved when the learner goes through all the four proposed stages and shows ability to achieve balance between them (Kolb, 1984).

In order to understand whether pharmacy schools consider those learning stages in the learning process, academics were asked to describe how they apply experiential learning at their schools. This was also important to establish the relationship between those experiential learning approaches and the extent to which they are utilised for the development of students' enterprise skills. Here, academics described a number of activities which are involved in their application of experiential learning approaches; these enabled the researcher to look at experiential learning by dividing those activities into six main aspects. These aspects were decided in a way that relates the four stages of experiential learning suggested by Kolb (1984) through involving components that were found essential in the application of some of the most commonly applied experiential learning methods applied at pharmacy schools including PBL, EBL and CBL. This division also helped the researcher in pinpointing the specific areas of weakness and areas that require further investigation or development in the delivery and assessment of experiential learning, regardless of which approach is applied.

The *Concrete experience* stage in Kolb's (1984) learning circle involves the 'feeling' part of experiencing or encountering a new experience or re-interpreting an existing one. PBL, EBL or CBL are essentially centred around problems (Boud, 1985; Barrows, 1985; Feletti, 1993;

Savin-Baden, 2007), and, therefore, the concrete experience learning stage can be seen to take place when students are exposed to a problem. This stage of experiential learning whereby students are exposed to problems/scenarios will determine the content of learning as well as the learning environment in which students are exposed to the problem, and therefore has lead the researcher to suggesting the first two aspects of experiential learning. The first aspect is the problem/scenario *tactics* that determine the content of learning, and basically means the tools used by schools to deliver the problem to students or expose them to it like for example case studies, and the second aspect is the problem/scenario *learning environment* in which students are exposed to problems/scenarios, like tutorials for example.

The *Reflective observation* stage in Kolb's (1984) learning circle involves the 'watching' part, where students evaluate new experiences to see if there are any discrepancies between the experience they are facing and their understanding, which could take place through discussions with mentors and colleagues. This stage is directly linked to the next stage where reflections lead students to process their ideas though *abstract conceptualism* to reach new ideas or alter their existing concepts. To achieve this, students should thoroughly understand the problem through research and discussions. Accordingly, these two stages have lead the researcher to the suggestion of the second two aspects of experiential learning including the *group work* aspect and the availability of an *academic facilitator* aspect to monitor the group learning process, both of which are essential elements of experiential learning. These aspects were seen important for building students' skills since they involve a lot of skill-building activities; nevertheless, building of students' skills can take place throughout the learning process at all stages.

In the *active experimentation* stage in Kolb's (1984) learning circle the students reach conclusions based on the previous stages of learning, and are expected to show their ability to

make plans and introduce changes to handle the situations/problems in hand, and see the results. Accordingly, this stage lead the researcher to suggesting the fifth aspect and that is the *vehicles* for presenting resolutions of problems/scenarios by students. The vehicles provided here are important to provide tangible evidence of the student's development that is valuable for assessment of their knowledge and skills; these might include reports for example. In accordance with Kolb's (1984) learning cycle, students might be referred back after presenting their resolution for further investigation or assessment, where the cycle starts again with application of a new experience and so on.

It is important to point out, however, that the suggested first five aspects of experiential learning here should not imply that these certain aspects are limited exclusively to a certain stage of experiential learning. For example, the learning environment aspect might not change throughout the stages of learning; for instance when students are given an experiment in a scientific lab and they go on to investigate that problem, come up with findings and write reports in the lab learning environment, which makes the learning environment (lab) the same over more than one stage of learning. However, the purpose of dividing these aspects in this way is to ensure that they relate to the basic stages of experiential learning suggested by Kolb (1984), and make it clearer to understand the process of practically applying experiential learning as well as its specific components and implications, and how these relate to the development of students' enterprise skills.

The sixth aspect of experiential learning suggested by the researcher here is, however, a more holistic one that considers the whole process of delivering experiential learning, and is seen to encompass all the previous stages and aspects. This aspect considers the approach that the school follows in applying experiential learning, and is referred to as the *mode* in which experiential learning takes place. It looks at the strategy or philosophy of the school in

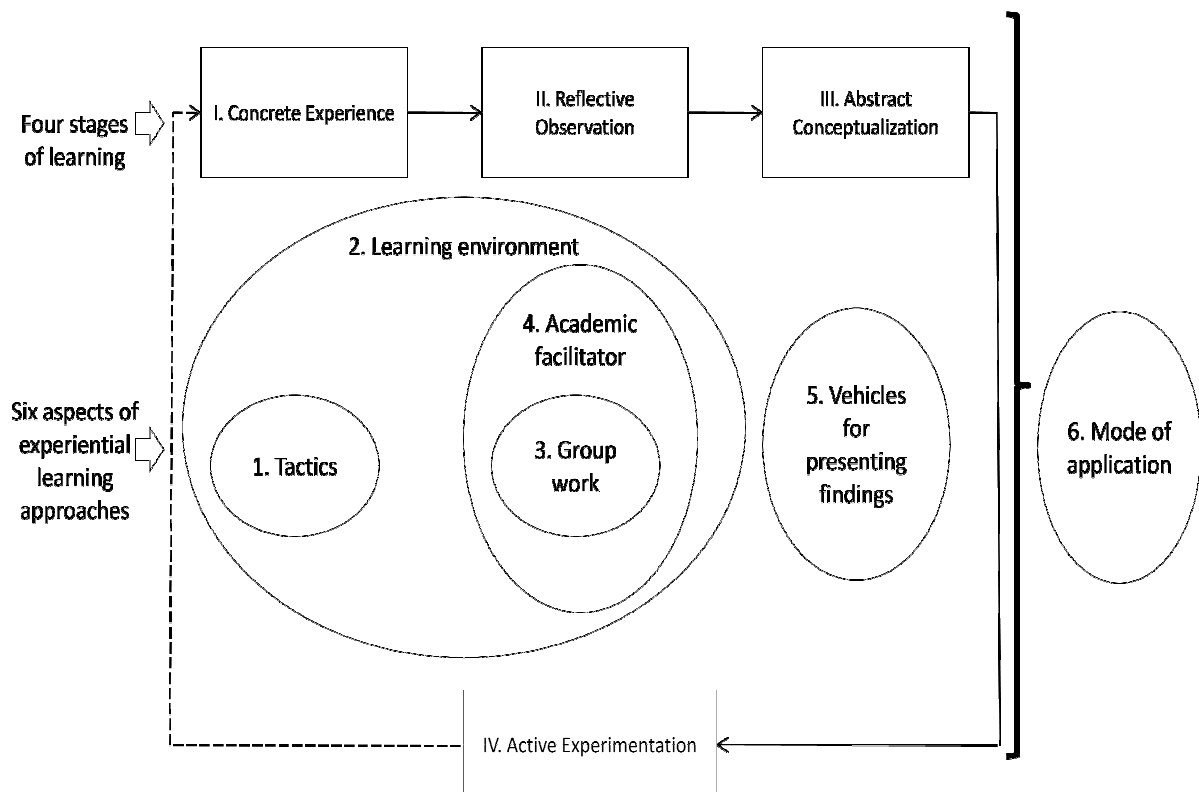
applying experiential learning, like for example if it is applied as a school philosophy of learning or as a personal effort by some tutors in some courses only. This aspect is very important since it reflects the extent to which schools are dedicated to investing in experiential learning approaches and the degree to which students are engaged in them, which could possibly reflect whether students are developing their skills at simpler or at higher and more complex levels.

The following Figure 9.1 summarises the six suggested aspects of experiential learning including tactics, learning environment, group work, academic facilitation, vehicles for presenting findings and mode of application, each of which represents an essential component of one or more of the stages of the experiential learning process. The figure shows how each of the first five suggested aspects falls under one or more of the stages of experiential learning suggested by Kolb (1984), which include concrete experience, reflective observation, abstract conceptualism and active experimentation. The final stage of learning that students go through might sometimes be followed by further in-depth investigation of the problem in hand or an assessment of the value of the findings, where students would be expected to go through the learning stages all over. The figure also shows how the sixth suggested aspect is a more holistic one that encompasses all the previous aspects since it considers the strategy of schools in applying experiential learning approaches.

These suggested six aspects were investigated at pharmacy schools. It is important to point out here that the described six aspects can be common to any experiential learning approach applied at pharmacy schools, whether PBL, CBL or EBL. This is due to the fact that these approaches are very much similar even though there are some pedagogical differences between them (Price, 2003; Savery, 2006; Savin-Baden, 2007). Savin-Baden (2007) contended that PBL and EBL are very much similar even though some institutions consider

EBL to offer more ways of thinking by utilising small-scale research and project work (Kahn and O'Rourke, 2004), whereas the main difference between PBL and CBL mainly lies in the extent to which academics drive the process and facilitate the sessions, where in the latter they can provide more guidance to students than in PBL (Srinivasan *et al.*, 2007). Accordingly, the six aspects of tactics, learning environment, group work, academic facilitation, vehicles and mode are common to these experiential learning approaches and will be discussed with regard to their application at pharmacy schools next. The various activities applied under each will be discussed with regard to their application at pharmacy schools as well as their relation to current literature. Furthermore, the following discussion will highlight whether these aspects are related to the development of students' enterprise skills.

Figure 9.1.: The suggested six aspects of experiential learning



Author work (2012)

Several ways of presenting problems to students are available in the literature. In experiential learning, learning is essentially centred around problems that are ill-structured, often interdisciplinary, and reflect real-life situations (Torp and Sage, 2002). Real-life situations should help students develop independence and life-long learning skills (Barrows and Tamblyn, 1980). It was noted that pharmacy schools apply a number of tactics to present problems to students in ways that encourage students to identify problems and resolve them, which matches with Dewey's (1944) argument that the learning process should be initiated with inquisitiveness of the learner.

Academics mentioned several ways of presenting problems to students, and added that they do focus on presenting them with problems that reflect real-life situations. Presenting students with real-life situations that they have to resolve has been proven to develop a range of their skills such as problem-solving, critical thinking, communication, negotiation and life-long learning (e.g. Albanese, 2000; Cisneros *et al.*, 2002; Wee, 2004; Poikela and Poikela, 2005; Ross *et al.*, 2007). One of the most common approaches was through case studies. Academics mentioned that case studies are very useful tools to help students envision real-life situations and their relevant aspects, and also help them realise their role as pharmacists in the case scenarios, which should help them understand their roles in real-life and how their knowledge applies within it. Some academics also mentioned that cases can be presented to students through role plays that present to them various patient scenarios, where they are requested to identify the problems and resolve them. Furthermore, students can be requested to analyse a chemical reaction or test a formulation through conducting experiments. Here students have to think about the proper formulation and compounding to turn them into a medication; for that they will have to investigate chemical structures, possible chemical reactions, valid formulation methods, doses, dosage forms and so on. These experiments might be integrated sometimes with patient scenarios in order for students to develop whole

treatment plan that goes beyond the experiment itself. Prescriptions were also mentioned as means for presenting students with problems/scenarios, and these could be presented as part of case studies. By identifying possible problems/mistakes in these prescriptions and the people that need to be contacted about these problems to resolve them, students are expected to enhance their communication and negotiations skills with doctors and patients, besides developing their problem-solving skills.

Here, it is important to discuss the extent to which inter-disciplinary learning is applied in the selection of problems, which is a matter that has been emphasised by Boud (1985). Interdisciplinary learning also helps in developing a range of students' skills, among which are the generic enterprise skills such as critical thinking, problem-solving and creativity (Ward and Lee, 2002). A lot of variations were noted in this regard, most of the schools mentioned that they teach on a modular basis while applying inter-disciplinary education to varying degrees. In this case, students are mostly presented with problems that combine aspects from different disciplines, and students are expected to bring in some integration of what they learned in earlier years or in other modules and show that integration in their results. However, this was not applied in all courses which resulted in some courses, especially the science-related ones, being often taught in a segmented manner. Tchudi and Lafer (1996) argued that segmented learning provides compartmental knowledge that develops organised facts and theories which are important to build more advanced research and understanding, but does not support the development of skills that interdisciplinary learning provides, and Ward and Lee (2002) also argued that students' skills cannot be developed through disciplinary teaching. Yet, a smaller number of schools applied a more complex inter-disciplinary approach where learning is contextualised into themes that draw from the whole programme rather than being provided on a modular basis. These schools, although limited in number, seemed to be more organised in their application of experiential

learning approaches; more specifically, they were keener on investing in group learning, providing academic facilitation and offering students the required learning environments to tackle problems. This is possibly due to the fact that interdisciplinary learning requires collaborative student efforts and knowledge of several disciplines to reach a solution (Meier *et al.*, 1996; Dabbagh *et al.*, 2000; Sage, 2000; Gordon *et al.*, 2001), and, thus, imposes more demands on schools to provide students with the necessary aspects of experiential learning.

Academics described how they are keen on selecting professional problems that reflect real-life cases from practice, which is essential for the success of PBL as described by Davis and Harden (1999); this however was not seen in the selection of problems from science and research contexts where academics described problems in the science-related courses to be more straight forward and depending on problem solving rather than being problem-based. This point was also emphasised by students who mentioned that the educational process makes the practice-related courses more interesting by involving more interactive activities in them. The focus on using more problems reflecting real-life situations in practice-related contexts is also related to the fact that almost all schools have teacher-practitioners on their academic teams who teach and work in practice, i.e. hospitals and retail. Teacher-practitioners are shown to be better in relating the education process to the real-world since they are more aware of the current practices (Shaw *et al.*, 2006). However, none of the schools employed teacher-practitioners who teach and work in industry or research, which probably explains the weak integration of real-life problems in science-related courses.

In order to allow students the opportunity to identify and resolve these problems, suitable learning environments should be utilised. The learning environments alongside the problems in hand will shape the contexts of the problems/scenarios. These contexts offer the opportunity for interaction and engagement among students to facilitate self-learning skills,

team skills, problem-solving skills and others. Bayard (1994), Kilroy (2004) and Tiwari *et al.* (2006) mentioned that motivational learning environments in PBL are essential to enhance students' potential for the acquisition and structuring of knowledge so it can be recalled later on.

Several learning environments were identified in interviews where students are offered time and space to discuss and resolve problems. In this regard, academics mentioned tutorials which they saw to be very useful for discussing what students learned in lectures and discussion of case studies. Laboratories were also mentioned as active learning environments where students have the opportunity to resolve various problems. Real-world contexts were also mentioned as learning environments where students could be exposed to various problems through placements, for example. Furthermore, workshops, even though not commonly applied, were mentioned by a small number of academics to offer a great opportunity for students to engage together in small groups to resolve various issues.

Such learning environments should be considered since the nature of the problem will differ according to the context of the discipline and the intended learning outcomes (Boud, 1985). Furthermore, Engel (1991) mentioned that the specific objectives of PBL vary according to the context and discipline in which it is applied, and Hammel *et al.* (1999) stressed that the more relevant the problem is to the context the better the learning outcome. Such arguments are important here since they appeared to be considered at pharmacy schools but only to a limited extent. It was noted that more focus is placed on utilising interactive learning environments for problems that are related to practice-related courses rather than science-related ones, which might partly explain why employers thought that graduates are more developed clinically than scientifically; this also matches with Albanese's (2000) argument

that acquiring knowledge in the context of how it will be used eventually increases the chances of students applying this knowledge later in practice.

With regard to learning environments, it was also important to evaluate the extent to which pharmacy schools provide students with the necessary time and space to tackle problems, and whether they support them with the necessary resources to do that. The Maastricht seven-jump model explained by Wood (2003) and Schmidt and Moust (2000) provided practical steps for applying PBL which are quite commonly applied nowadays. In this model the importance of availability of several resources for students to seek solutions was emphasised (Novak *et al.*, 2006), where students could arrive at the conclusion that several options are available. Wee and Kek (2002) also talked about the importance of providing students with the time and space necessary for them to extract information about the problem, define and discuss their initial opinions, brainstorm, arrange their information, relate it to the problem, suggest explanations and point out their learning gaps. At pharmacy schools, students are provided with resources where they could seek the relevant knowledge they need. However, the problem was often related to the volume of knowledge that pharmacy schools have to deliver during the programme, which impedes the application of interactive learning, and prevents academics from providing students with enough time outside classrooms to tackle problems in groups.

Regarding the group work and academic facilitation aspects, it was noted that pharmacy schools utilise group work in resolving problems, and sometimes each group is assigned an academic facilitator to monitor the group's learning. Group work is essential for students to discover and structure problems that are presented to them in an ill-structured manner, and develop an approach to resolving them (Csikszentimihalyi and Getzel, 1971; Shaw *et al.*, 2006). Hmelo-Silver (2004) also argued that learning in PBL takes place as students work

together on messy problems which do not necessarily have one single right answer. However, an important note here is that application of group learning at pharmacy schools does not take place in a systematic or organised way in most cases, rather it is applied only sometime during the programme, and only by some academics. Furthermore, the numbers of students in group activities vary widely where sometimes they could be as small as four to six students and sometimes larger numbers of up to sixteen students are involved. Barrows (2000) argued that optimum learning in PBL takes place through groups of six to eight students who are led by mentors or facilitators. Norman and Schmidt (1992) also mentioned that small group interactions in PBL are the stimulus for students to use their knowledge to build explanations about the problem in hand, which in turn will develop into processing and comprehension of new knowledge.

Academics generally act as facilitators rather than lecturers or spoon-feeders, where such a role is assumed throughout the programme and not limited only to their roles when supervising groups. Academics work to arrange meetings with groups and facilitate or monitor their learning; but it is not always possible for schools to assign a separate academic facilitator for each group since this involves a lot of costs that schools cannot shoulder, even though this often takes place at a limited number of schools. However, when academics were asked to describe their role as facilitators, their answers indicated that there is a general lack in understanding the concept of facilitation in PBL, EBL and CBL. Academics generally talked about encouraging students to answer questions in a classroom, motivating students who feel shy and encouraging them to read books and search for answer. Academics, however, did not talk about their limited role in providing information to students; so even in schools that apply PBL and EBL academics would still provide students with some knowledge upon which they could build. This contradicts the concept of facilitation in these two experiential learning approaches where facilitators' roles in PBL are concerned with

motivating students and supervising and assessing group dynamics (Torp and Sage, 1998; Gordon *et al.*, 2001; Maxwell *et al.*, 2001). Facilitators in PBL should encourage students' thinking without imparting facts or directly answering questions (Maudsley, 1999; Dolmans *et al.*, 2002), and the same applies for EBL (Savin-Baden, 2007). In the case of schools that apply CBL, academics were also not very aware of their limitations in imparting knowledge, even though CBL allows facilitators to answer students' questions through questions that direct their thinking and keep them focused on the learning objectives (Srinivasan *et al.*, 2007).

Understanding their roles as academics facilitators is essential for academics to help students in their learning process that involves constructing new knowledge (Gijssels, 1996; Davis and Harden, 1999; Hmelo-Silver, 2004), and is also important to support the student's role to become active through building and relating knowledge rather than a passive one of memorising facts (Dolmans and Schmidt, 2000). Such understanding of roles was emphasised by Schon (1983) who stressed the *content and process* of delivering PBL, and also by Schmidt and Moust (2000) who added that the skills of facilitators are a cornerstone for the success of PBL programmes.

As for the vehicles for presenting findings and resolutions, these are essential for providing tangible evidence of the work students have undertaken. The importance of seeking solutions and reflecting on the whole problem-solving process is an issue that has been emphasised by Dewey (1944). Academics mentioned several vehicles in the interviews such as portfolios where students reflect on various situations and show how they learned from them and how they have influenced them; portfolios were also linked to developing professionalism of students. Oral presentations are also quite common where students get to develop their presentation and communication skills. Posters were described as vehicles that help students

focus a large topic in small meaningful paragraphs. Reports and essays are very commonly applied, while MURs, pharmaceutical care plans and seminars and conferences were less frequently applied.

During interviews with academics, the researcher was interested in exploring whether those vehicles are utilised for assessment of students' skills and not just their knowledge because being able to demonstrate skills and solve various problems would mean that students should be able to apply the knowledge they have (Barrows, 2003). Academics focus on students' skills when assessing those vehicles. For example, they consider writing skills, communication skills, analytical skills, confidence, team skills, time management, establishing priorities, assertiveness, creativity, persuasion, networking, resourcefulness, decision making, reflective thinking and computer literacy. However, at pharmacy schools, applying these vehicles and choosing the proper assessment is totally a personal decision that is made by the tutors or course leaders, and in most cases assessments are not set formally and are subjective and dependant on a tutor's judgements.

Pharmacy schools encourage the application of innovative and interactive learning approaches that lead to the development of students' skills through trainings and workshops, but do not force their application. Therefore, a lot of inconsistency was noted in the application of these vehicles among schools and across modules at the same school, which matches with McDonald and Savin-Baden's (2004) argument that assessments that ensure that the learning approaches have met the intended objectives are often out of alignment. For example, portfolios have been identified by McDonald and Savin-Baden (2004) as very useful assessment tools when designed properly, based on clear evaluation criteria; however, application of these portfolios takes place in one module only at some schools, and does not follow an organised structure that guides the development of students in several schools,

which is expected to dissipate the objectives of these portfolios (McDonald and Savin-Baden, 2004). Furthermore, the expected learning outcomes are not always discussed clearly with students, where such a matter has been argued to be essential for successful PBL assessments (Evensen and Hmelo, 2000; Estrada Duek, 2000; Savin-Baden and Howell Major, 2004).

Furthermore, Hartshorn (2002) mentioned that PBL should go beyond the boundaries of traditional education to achieve its objectives. However, it was noted that assessments are mostly subjective and depend on the tutor's personal judgements; such assessments raise a lot of issues as they increase students' reliance on facilitators and hold them back from becoming independent learners, and, thus, other forms of assessments that involve individuals other than facilitators are more recommended (McDonald and Savin-Baden, 2004). In this regard, some academics talked about applying peer assessments, which are mentioned to support the development of a range of skills that are necessary for employment (Walker, 2001; Cassidy, 2006). However, the application of peer assessments across pharmacy schools is still very weak and unorganised.

As the choice of vehicles and assessment tools in pharmacy schools is still largely subjective, it was not surprising to find that traditional methods contributed to a large share of the assessments. Many academics still rely on traditional methods of assessment or apply assessments that are knowledge driven, and even when the variety of vehicles mentioned above are utilised, academics mentioned that they would still find themselves focusing on finding the right answers when marking a report or an exam. This matches with the YE Report (2000) which argued that a large number of academics still rely significantly on cognitive and theoretical learning rather than practice, reflection and involvement. This also supports the arguments of the Centre of Education and Industry (2001) and DfEE and Davies (2002) that even when experiential approaches are applied they often lack a conceptual base.

As for the last aspect of experiential learning, the mode of application, findings of this research showed that application of experiential learning approaches at pharmacy schools generally lacked consistency and organisation. In other words, experiential learning is applied only in some contexts, in some modules and only by some academics who are personally interested in applying these learning approaches. The reason for this is probably because experiential learning approaches are mostly not set as part of the schools' strategies or incorporated as part of the curriculum implementation in a formal way, rather application of these learning approaches is totally a personal choice that falls upon academics teaching or leading the courses. This also explains why there is still a significant amount of didactic teaching at pharmacy schools. So despite the fact that schools encourage the application of experiential learning through workshops and training, or sometimes by encouraging or forcing academics to obtain a degree in education, there is no notable support from schools to enforce the application of these learning approaches. This is important since the Survey of Entrepreneurship in HEIs in Europe (2008) and Frankel (2009) argued that organisational factors can affect and in many cases impede PBL implementation across the curricula in an institution.

It is important to re-iterate here that the findings of this research showed that some schools apply a contextualised learning approach, as mentioned earlier in the discussion focused on the *problems*' aspect; however, for these schools the focus was on integrating the disciplinary knowledge into themes throughout the programme and not on contextualising the experiential learning approaches throughout the programme since application of those learning approaches even at those schools was a personal choice.

Yet, based on Savin-Baden's (2007) argument that in order to apply PBL it is not necessary to have it always implemented as a school philosophy or even to have it implemented in all

modules and by all academics, it can be said that pharmacy schools are applying experiential learning methods through modes other than the integrated mode described by Savin-Baden (2007), where a variety of other modes have been suggested. Perhaps the best way to describe the most common mode for applying experiential learning at pharmacy schools is through comparing it to the '*PBL on a shoestring*' mode suggested by Savin-Baden (2007), where PBL is usually applied by academics who are interested in PBL but not by others. The downside of this approach is that despite having experiential learning applied in several modules, there is no flow in its implementation, the problems or scenarios are limited within a certain module in most cases, and there is no coordination in the design of curricula to guide students' development over the years by exposing them to higher level problems as they progress; thus, this mode does not support integrating students' learning at the level of the whole programme. Such an approach has been described by Savin-Baden (2007) as causing academics to become frustrated due to lack of a clear strategy in implementing experiential learning, thus, making them unable to see how their efforts could be moved forward and built on in other modules when the students progress in their learning.

9.5. DISCUSSION OF OBJECTIVE 4: TO IDENTIFY OBSTACLES EXTERNAL TO HEIs THAT IMPEDE THE DEVELOPMENT OF PHARMACY STUDENTS' ENTERPRISE SKILLS

As mentioned in the Introduction Chapter, this fourth objective is an aspirational one mainly due to the lack of literature in this area, which makes it quite difficult to relate the findings and discuss them in the context of relevant literature. Here, the researcher aspires to identify some of the external issues, which are not related to HEIs, but are thought to impede the development or the demonstration of enterprise skills by recent graduates in the real-world. These issues were mainly explored through discussions with academics, and points of agreement and disagreement with employers have also been identified as follows:

- Academics discussed several issues that cannot be controlled by HEIs alone. So even when HEIs work toward developing students' enterprise skills, such issues would still impede the development or demonstration of those skills in graduates in the real-world. These points mainly included:
 - All recent graduates need to be allowed a transition period once they start their jobs/careers in order to develop their skills in the real-world new context.
 - HEIs equip graduates with the knowledge and skills needed by any degree holder (day-one graduate), and not with the specific knowledge and skills needed to assume certain positions in an organisation.
 - Real-world organisations do not support pharmacy schools in providing placements for students during their studies, where placements are seen as the best approach for developing students' enterprise skills. This is made worse by the lack of internal and/or external funding to support placements.
 - The ability of recent graduates to demonstrate enterprise skills is influenced by the roles assumed by pharmacists in the real-world. These pharmacists are seen as role models and in many cases they are not assuming the main roles involving patient-care and health advice required by pharmacists.
 - The focus in real-world pharmacy organisations is often business oriented, especially in large multiples (chain pharmacies), while the focus in the educational process is on patient-care and health provision. This is made worse by the lack of government support to control the description of roles of pharmacists in the real-world.

Academics generally argued that schools work on developing a range of students' generic enterprise skills; however, after moving on to the real-world, academics mentioned that employers should allow graduates a transition period to refine their skills and build on them. This possibly relates to what was mentioned earlier in the discussion of the second objective that the development of generic skills is affected by the disciplinary culture in which they are developed (Jones, 2009), and the context in which these skills are developed affects the way in which they are assumed (Clanchy and Ballard, 1995). This probably justifies the academics' point to allow graduates a transition period since their skills have been developed in an educational context and they would, thus, need some time to adapt their skills and develop them within a real-world context in order to be able to demonstrate them in that context at a satisfactory level.

Furthermore, academics mentioned that they work on preparing pharmacists who are ready for day one of the job in whichever sector they chose to enter, and do not work on preparing chief pharmacists or managers in companies. However, employers were not completely satisfied by this justification; this lack of satisfaction was especially noted from industry employers possibly due to their complaint that graduates are weaker on the science-related aspects of pharmacy that are important for industry because their education was focused more on practice and less on science. But again, this might suggest that HEIs equip graduates with the general knowledge and skills needed by the degree holder, and not with the specific knowledge and skills needed to assume certain positions in the real-world.

As mentioned in the discussion of the first objective, academics also agreed that integrating the educational process with real-life exposure is the best way for developing students' skills, and employers supported this by saying that students who engaged in real-life work showed more competency in demonstrating their skills. This matches with Rae's (2007b) argument

that strong connections between enterprise education and employability are essential for developing students skills despite the challenges this imposes on educational systems. However, academics complained of the lack of support of real-world organisations in providing placements for students, where they request quite a lot of money for offering these placements; on the other hand, pharmacy schools are not supported financially by the government – as in the case of medical schools for example – to pay for these placements, which leaves them in a weak position. Such funding, internal or external, has been identified in the Survey of Entrepreneurship in HEIs in Europe (2008) as the most important obstacle to overcome for the establishment and continuity of enterprise education in HEIs.

In this regard, academics also talked about differences between HE and the real-world and mentioned that often the focus in the educational process is different from the focus in the real-world. Academics mentioned that during the educational process the emphasis is on building a strong base of knowledge that is necessary for any pharmacist, and developing their skills in that context. Accordingly, the expectation of HEIs is for students to move on to the real-world and refine their skills by understanding more how their knowledge applies in the real-world. However, in real-world placements academics mentioned that employers do not help students realise the practical application of their knowledge but rather focus on engaging them in the culture of the organisation and the success of the business. Academics added that this problem is made worse with the fact that around 90% or more of students choose to have placements in retail, where the pharmacists' role in this sector is not mainly focused on patient-care, but rather on handling various processes related to pharmacy management, which academics saw as a matter that is distorting the image of the profession. Academics mentioned that the role of pharmacists in retail is made worse by the fact that the government does not support the roles of pharmacists in the real-world as in the case of supporting the roles of GPs for example. A retail pharmacist is a part of the health team;

his/her roles require providing health advice on various matters as well as patient-care and follow-up. However, without governmental control of such roles, retail pharmacists' responsibilities are decided by the organisations they work for, and with the dominance of business-oriented retail pharmacies, especially in the case of multiples, such roles are being taken over by other roles that do not relate to pharmacists' roles as part of a health team.

Such a problem raises a question of whether the pharmacy educational process should bring in integration of pharmacy management issues within the process of experiential learning, especially since 90% or more of graduates secure employment in retail where such issues comprise an essential part of their work. Neither academics nor employers were supportive of this point. Academics said that pharmacy is a scientific degree that should remain focused on pharmacy knowledge, while employers said that whoever is clever enough to study pharmacy should be clever enough to learn these issues in real-life. Yet, this might lead to questioning the extent to which experiential learning is utilised at pharmacy schools to engage students in real-life problems that should help them apply their knowledge in real-life later on in their careers, which is the objective of experiential learning (Kolb, 1984). Furthermore, from the perspective of enterprise education, the main objective of this education is to bridge between studying and working environments to prepare graduates who are better prepared for the real-life working environment (Whiteley, 1995). Enterprise skills have also been related to employability (Rae, 2007a; 2008), which aims to equip students with the skills and knowledge, as well as the understanding and personal attributes which should help them in choosing their career path and to be satisfied and successful in that (Dacre Pool and Sewell, 2007). Accordingly, the matter of the extent to which pharmacy education should be modified to resemble real-life –especially that of the retail sector– should be further investigated.

9.6. SUMMARY OF RESEARCH OBJECTIVES

Objectives of this research included three main objectives and one aspirational objective. The research considered views of pharmacy employers, academics and students to explore these objectives. All three groups agreed that enterprise skills are essential for any graduate despite the fact that students agreed that real-life experience is necessary to evaluate the extent of that importance. Academics agreed that the educational process supports students in developing a range of enterprise skills, and students were supportive of this point. However, employers agreed that graduates are not presenting with a satisfactory level of skills and blamed HEIs for this, while academics argued this point and agreed that the development of enterprise skills should be a shared responsibility between HEIs and the real-world, and students supported academics in this point. Students' views were more supportive of the academics' views possibly because those students have so far been mainly exposed to HE contexts even though some of them might have some experience in the real-world. It is possible that once those students graduate and start gaining experience in the real-world their views would change and become closer to those of employers. This issue, however, has not been investigated in this research. The following Table 9.1 provides a brief summary of the opinions of academics, employers and students as they relate to this research objectives and questions.

Table 9.1.: A comparison between opinions of academics, employers and students as they relate to this research objectives and questions

Objective 1: To establish the value of the contribution of HEIs in developing more enterprising pharmacy graduates			
Objective 1 Research Questions	Academics' Opinions	Employers' Opinions	Students' Opinions
RQ1: To what extent is there a need for recent graduates who are capable of demonstrating a range of enterprise skills?	Ability to demonstrate enterprise skills is essential for any graduate to start a career in the real-world	Agreement with academics	Agreement with academics
RQ2: Which enterprise skills are important to pharmacists?	All enterprise skills in terms of generic transferable skills are essential for pharmacists	Agreement with academics	NA*
RQ3: Are recent pharmacy graduates presenting with a satisfactory level of enterprise skills?	Academics believed that the educational process works toward equipping graduates with a range of enterprise skills. They saw that students realise the value of enterprise skills and hoped they would be able to demonstrate them once they graduate	Employers are not satisfied by the level of enterprise skills demonstrated by recent graduates. Employers saw that graduates do not realise the value of enterprise skills until after they graduate and work in the real-world	Students saw that the educational process helps them develop a range of skills but did not feel they would be confident to handle a pharmacy on their own, for example, once they graduate
RQ4: Is the development of enterprise skills a personal responsibility of the student, a valuable inclusion in an undergraduate pharmacy degree, and/or the responsibility of employers in the pharmacy marketplace?	Academics stressed that the development of enterprise skills should be a joint responsibility between HEIs and the real-world	Employers saw that the responsibility of developing enterprise skills is mostly theirs	Agreement with academics
RQ5: What are the pharmacy students' perceptions as to the value of and need for enterprise education and the development of enterprise skills?	Academics mentioned that they talk to students about those skills and, thus, would expect them to understand their value	Employers mentioned that students do not realise the value of enterprise skills until after they graduate and start a job/career in the real-world	Students agreed that enterprise skills are important, but added that they cannot judge the extent of that importance until they actually engage in the real-world

Objective 2: To determine the extent to which pharmacy schools in the UK HEIs embrace the concept of enterprise education			
Objective 2 Research Questions	Academics' Opinions	Employers' Opinions	Students' Opinions
RQ6: Do pharmacy schools understand the concept of enterprise education?	Lack of understanding of the concepts of enterprise education and enterprise skills	NA	NA
RQ7: What efforts are being introduced to develop students' enterprise skills?	Students are involved in several interactive learning activities that should help them develop a range of enterprise skills	Employers saw that the educational process is too knowledge-focused and does not help students develop their enterprise skills	Agreement with academics
RQ8: How are these enterprise skills being developed, intentionally or accidentally?	Academics mentioned that the educational process aims to develop a range of skills. However, assessments are not done in an organised or systematic manner, they are still largely subjective, and many skills are developed only in a clinical context	NA	NA
RQ9: Where are these skills developed, as part of undergraduate education or workplace environment (in HEIs' context or real-world's context)?	Academics mentioned that students develop some skills during the educational process, but agreed that integrating real-life placements in the degree is the best way to develop those skills; however, the application of these placements is very weak	Employers agreed that real-life placements are the best way to develop students' enterprise skills during their studies	Agreement with academics

Objective 3: To assess the significance of contribution of experiential learning methods to the development of enterprise skills			
Objective 3 Research Questions	Academics' Opinions	Employers' Opinions	Students' Opinions
RQ10: Which experiential learning methods are being applied?	PBL, EBL and CBL are the most commonly applied experiential learning approaches in pharmacy education	NA	NA
RQ11: What are the objectives of applying these experiential learning methods?	The main objective is to help students engage in problems that reflect real-life situations, and, thus, help them relate their knowledge to practice whilst they develop a range of skills	NA	NA
RQ12: How are experiential learning methods applied at pharmacy schools?	Experiential learning approaches are applied by utilising a variety of activities and processes that have been described through the suggested six aspects of experiential learning	NA	NA
RQ13: How are the learning outcomes of experiential learning methods assessed at pharmacy schools?	Assessments are mostly tutor-lead, subjective, and often knowledge driven	NA	NA
RQ14: To what extent do pharmacy schools support the application of experiential learning methods?	Pharmacy schools encourage the application of experiential learning, but do not include them as part of schools' strategies or plans. Application of experiential learning is completely a personal choice of academics	NA	NA

Objective 4: To identify obstacles external to HEIs that impede the development of pharmacy students' enterprise skills			
Objective 4 Research Questions	Academics' Opinions	Employers' Opinions	Students' Opinions
RQ15: Are there any gaps or barriers that hinder the development or demonstration of skills by students and are not controlled by HEI?	Academics discussed several issues that might impede the development and/or demonstration of skills by graduates; these mainly included the need to provide graduates with a transition period because HEIs provide them with general skills and not job-specific skills, lack of support from real-world organisations and the government to support placement for students, lack of role models who assume the proper professional role of pharmacists in the retail sector which represents the largest pharmacy sector, and the business orientation of many organisations in the retail sector, especially in light of the lack of government support to the roles of pharmacists.	NA	NA

NA* (Not Applicable)

9.7. CONCLUSION

This chapter has discussed the development of enterprise skills in pharmacy schools in HEIs, and presented the impact of experiential learning approaches in doing so. The chapter considered views of academics, employers and students, and pointed out areas of agreement and disagreement. Through this discussion, the chapter has highlighted how experiential learning approaches are applied, and how they are linked to the development of enterprise skills. This discussion also clarified the process of applying experiential learning approaches, and has enabled the researcher to highlight some of the gaps in its application, which are seen to impede the development of students' enterprise skills. The chapter concluded with a

comparative summary between the opinions of academics, employers and students as they relate to this research objectives and questions.

The following, and final, chapter of this thesis highlights the conclusions of this study, while pointing out any contributions to literature and to practice, as well as making recommendations for future research in relevant areas.

CHAPTER TEN:

CONCLUSIONS

10.1. INTRODUCTION

The results of this research lend support to the conclusion that pharmacy schools work toward developing a range of students' enterprise skills, but the development of those skills is not systematic and is often out of context. The research showed that experiential learning approaches are applied quite often at pharmacy schools; however, there is no coordination in their implementation and several gaps that are seen to impede utilising these approaches for the development of enterprise skills have been identified. The research considered views of pharmacy employers, academics and students, and several points of agreement and disagreement were pointed out in the discussion.

This chapter will discuss the conclusions derived from this study. The chapter starts with a consolidation of results to reflect the complete picture of the findings of this research. Then the chapter highlights the contributions of this thesis to literature and practice, followed by a discussion of the limitations of the study. Finally, recommendations for future research are presented before concluding the chapter with a brief summary.

10.2. CONSOLIDATION OF RESULTS - THE COMPLETE PICTURE

One of the questions that this research aimed to address was that of identifying who is responsible for developing enterprise skills, and whether these skills should be developed as part of HE, as part of real-world experience, or as part of the responsibility of both. However, the findings of this research have indicated that the development of enterprise skills should not be seen as a responsibility of one party. Results of the research support that people

develop enterprise skills throughout their lives, and the development of those skills should not be seen as something that takes place at a certain stage in a person's life, but rather as a continuous process that is affected and enriched by the various contexts to which a person is exposed.

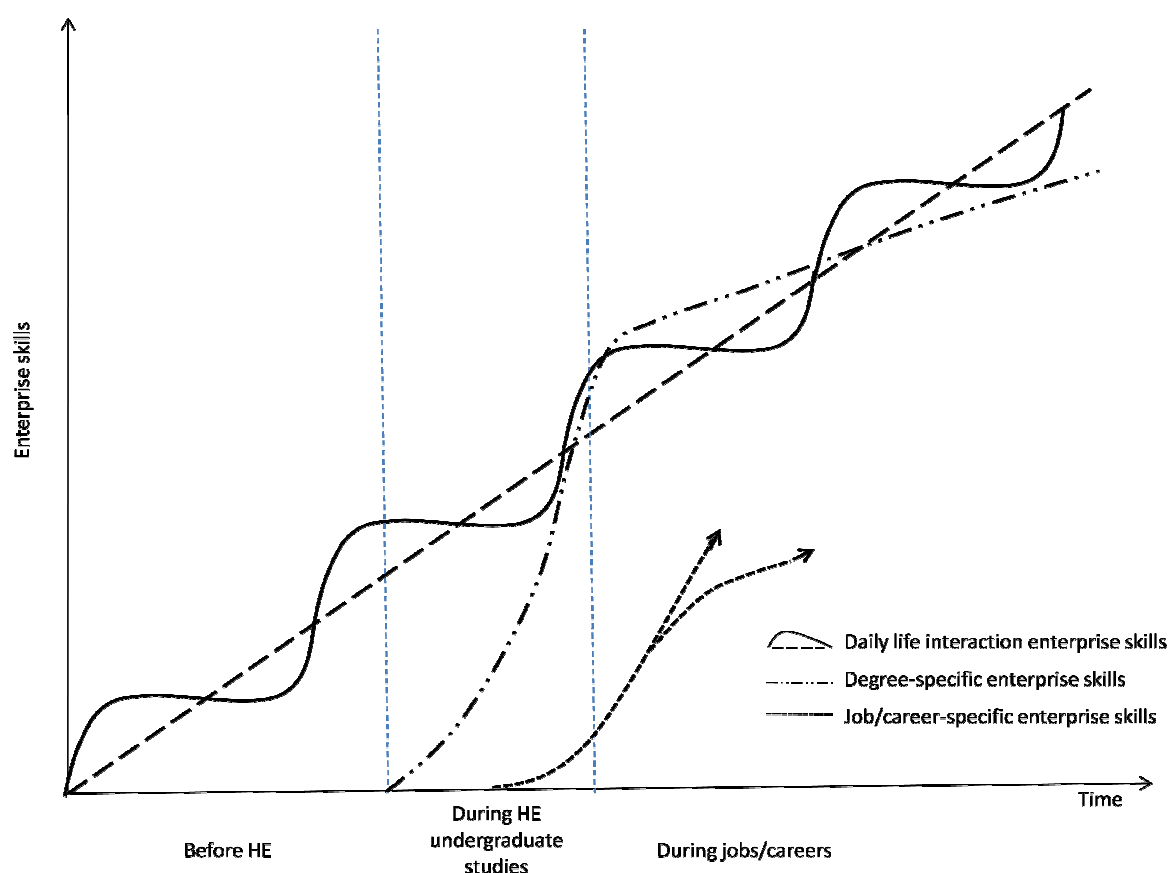
Clanchy and Ballard (1995) argued that the development of skills can only take place in educational contexts that are relevant to the disciplinary knowledge. Jones (2009) also argued that the development of generic skills is implicit in the teaching process and that good teaching practices will lead to the development of generic skills. However, the argument in this research is that people develop enterprise skills at all stages of their lives, but the development of these skills is context-specific to a large extent, thus, leading people to demonstrate the same enterprise skills but at different levels and with different attitudes depending on the context in which they are developed and the contexts in which they are demonstrated. To illustrate more, before going into HE, enterprise skills could be developed by everyone through primary and secondary education and every-day life interactions. Those daily-life interaction enterprise skills which people start to develop early in life enable them to interact with their friends, families and environments they live in, as well as resolve the daily-life situations they face. Then, when students go into HE contexts, they go through a transition stage where they build on and develop those same enterprise skills but at another level; students entering HE are expected to have a range of enterprise skills, but their skills have not yet been developed in a context that is specific to the discipline they want to study, or in other words they still do not have the ability to communicate or think as pharmacists, lawyers or engineers, for example, even if they had excellent daily-life interaction enterprise skills. Accordingly, during HE, pharmacy students are expected to develop their enterprise skills within the pharmacy discipline context, and learn how to communicate and think like pharmacists, which would be in a different way from students from law or engineering

schools, for example. Similarly, when graduates move on from HE contexts to real-life contexts, they should be allowed another transition period during which they could develop those same enterprise skills they have, but this time at a level that is specific to their job. This might explain why employers would still not be satisfied by the level of graduate enterprise skills even when HEIs work on developing those skills. This is because HEIs develop students' enterprise skills in a discipline-specific context, and cannot develop their skills as officers or supervisors, and certainly not as managers or chief pharmacists, where the latter are job/career-specific enterprise skills that could only be developed up to the level required by the employment sector in real-life contexts.

Figure 10.1 below shows the development of enterprise skills at three different levels in a person's life, taking into consideration that more stages could be involved. The stages suggested here are before, during and after HE. The daily-life interaction enterprise skills and the job/career-specific enterprise skills are shown to indicate that there are two different sets of skills, other than the degree-specific enterprise skills developed during undergraduate studies. However, the research does not provide sufficient data as to how the daily-life interaction enterprise skills develop; the curve shows that the development of these skills steepens sometimes and flattens at other times since people might develop those skills at a higher rate at certain times in their lives when they become exposed to more situations. However, this curve is unlikely to decline, and logically and hopefully people would continuously develop these skills as they mature until they reach an older age. The research does not consider how the job/career-specific enterprise skills develop either, but it has highlighted the possibility of initiating the development of these skills earlier during HE through exposing students to more real-life situations that support development of these skills in a way that brings the level of graduate enterprise skills closer to employers' expectations. As for the degree-specific enterprise skills, Figure 10.1 reflects findings of this research in

that these skills develop mostly during HE with a more notable increase as students approach their final year, and they are likely to develop quite steadily after starting a career/job, especially with the CPD required by some professions such as pharmacy which supports maintaining an updated level of knowledge and skills.

Figure 10.1.: Development of enterprise skills in different contexts at different stages of life.

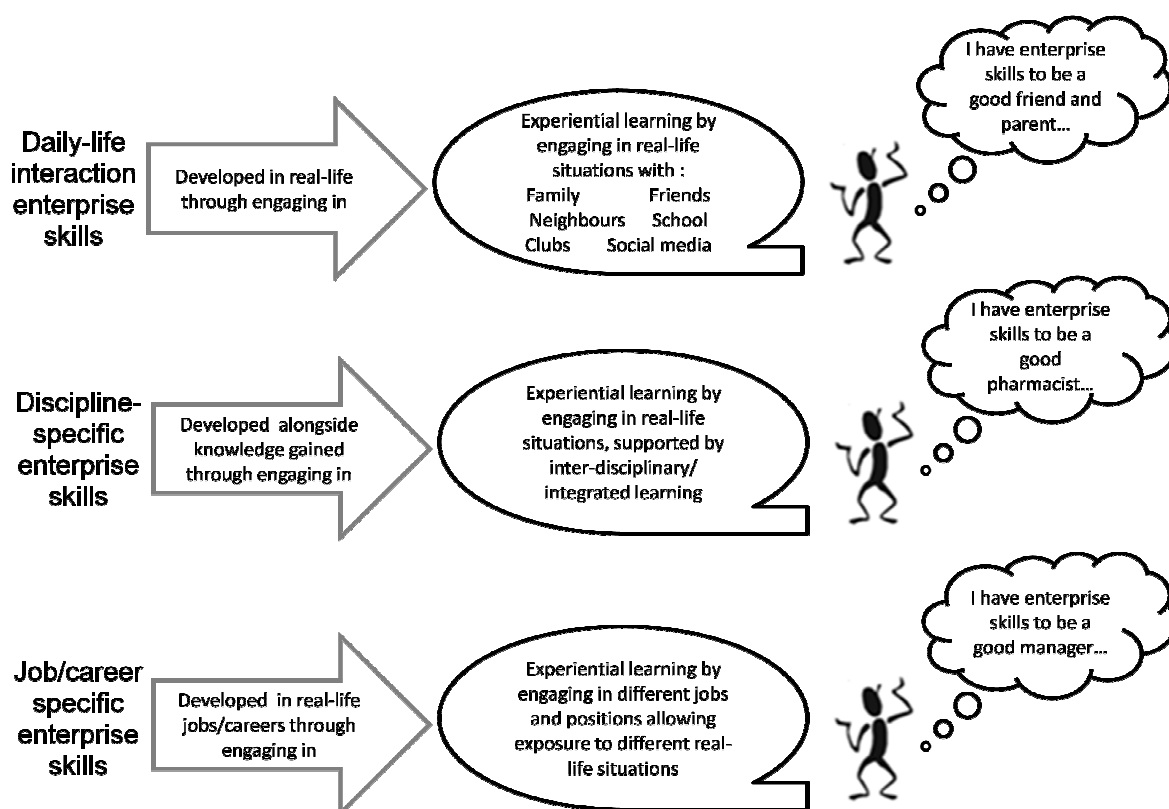


Author work (2012)

The skills developed in a certain context will affect the way in which these skills are assumed (Clanchy and Ballard, 1995). Yet, an important point highlighted in this research is that the enterprise skills developed in a certain context will also affect people's ability to demonstrate those skills in other contexts, and, thus, developing enterprise skills as well as an ability to demonstrate those enterprise skills is context specific. So someone could be an excellent communicator in a certain context but not in another, simply because he/she did not have the opportunity to develop his/her communication skills in the other context. Such an argument

might raise a question of: How transferable are transferable skills? According to this research, the more a person is exposed to contexts in which he/she is given an opportunity to develop enterprise skills, the more transferable this person's enterprise skills become. Otherwise, it cannot be expected to have someone who is capable of demonstrating his/her enterprise skills similarly in various contexts. Figure 10.2 shows that the daily-life interaction enterprise skills are developed through interactions with families, friends, neighbours, schools, clubs, social media and many others; this might take place through experiential learning where a person engages in real-life situations and learns to resolve them, and the more someone is exposed to these situations in daily-life the better his/her daily-life interaction enterprise skills become. The discipline-specific enterprise skills, however, depend a lot on the disciplinary knowledge gained; for example, the more the disciplinary knowledge gained by a pharmacy student, the more his/her confidence and ability to communicate, think and act like a pharmacist develops. Developing this disciplinary knowledge through integrated methods and experiential learning has been proven to support students in developing their skills as they learn to relate their knowledge to real-life situations, thus, developing further their discipline-specific enterprise skills. As for the job/career-specific enterprise skills, these become more developed and refined as people engage in more jobs, fill more positions where they engage in experiential learning while being exposed more to real-life situations in job/career-specific contexts. In either case, a person would present with a certain level of enterprise skills that is affected by the context in which these skills are developed; however, being able to demonstrate these skills in one context does not necessarily mean an ability to demonstrate them in another.

Figure 10.2.: Developing enterprise skills as well as ability to demonstrate enterprise skills is context specific



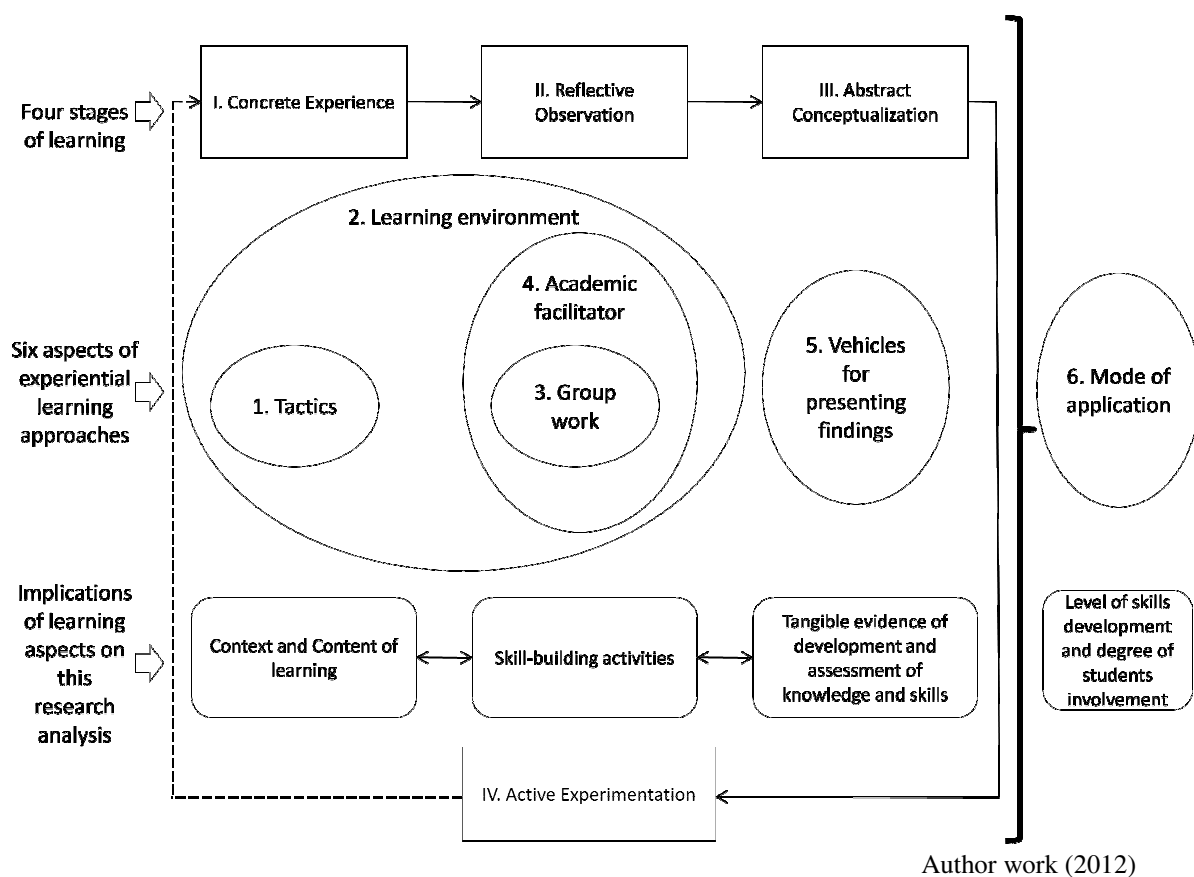
Author work (2012)

This research also identified some interesting findings to support the application of experiential learning approaches in ways that enhance their value in developing students' enterprise skills, and hopefully develop them to a level that is closer to employers' expectations. In Chapter 9, the six suggested aspects of experiential learning were discussed, such aspects have given more clarity to the experiential learning process, which should contribute to supporting the application of the different experiential learning approaches including PBL, EBL and CBL by highlighting essential aspects that should be considered in their application in HEIs and pointing out some of the gaps that affect the quality of the output of experiential learning methods.

Figure 10.3 shows how each learning aspect could influence the learning process of experiential learning and at the same time support the findings of this research. The first five

aspects of learning should support investigating the impact of the context and content of learning, they also highlight the activities and processes that support the development of students' enterprise skills. Furthermore, the first five aspects shed light on activities and vehicles that provide tangible and intangible evidence that could be valuable in assessing students' enterprise skills. The figure also shows how the sixth suggested aspect is a more holistic one that encompasses all the previous aspects since it considers the strategy of schools in applying experiential learning approaches and how that might affect the level of skills development and degree of students' engagement in the learning process.

Figure 10.3.: The suggested six aspects of experiential learning and their impact on the learning process of experiential learning and the development of enterprise skills



With regard to the context of learning, this research has highlighted the importance of the learning context through pointing out the gap in the application of experiential learning approaches at pharmacy schools in practice-related courses and much lesser in science-

related ones. As discussed earlier, the more a person is exposed to contexts the more his/her enterprise skills are developed. In the literature, the extent to which developing enterprise skills should be 'relevant' to the marketplace is still a matter of debate (CIHE, 2003); however, these research findings provide support for the view that HEIs should focus on applying experiential learning approaches across the spectrum of all modules in such ways that enable students to be exposed to more contexts that reflect the various real-life contexts available for graduates rather than only some of these contexts. Thus, the more relevant the experiential learning problems are to the variety of contexts available in the real-world, the greater the value of this learning in developing students' enterprise skills.

The skill-building activities referred to in Figure 10.3 can take place throughout the learning process. In the discussion of the tactics aspect, this research has stressed the importance of using inter-disciplinary problems that help students integrate their knowledge across different modules. This was noted in the emphasis on applying practice-related problems in pharmacy education, while the science-related problems were mostly based on problem-solving rather than being problem-based, which probably contributed to graduates who are too much clinically-focused and cannot see themselves working or applying their knowledge in science-related contexts. Placing more emphasis on applying inter-disciplinary problems that combine science and practice should help students see how certain knowledge complements other areas, rather than having compartmental knowledge that they do not realise the relevance or application of. Such integration of knowledge is seen in this research to help in developing students' enterprise skills.

The issue of weak integration of science-related problems is probably made worse by another gap identified in the academic facilitation aspect where pharmacy schools focus on hiring teacher-practitioner from practice backgrounds only, while those teaching science-related

courses are only academics. Therefore, findings of this research support hiring teacher-practitioners from the various sectors available for graduates when they start their careers. Teacher-practitioners are more aware of the current practice and, thus, are more capable of integrating real-life problems into the curricula (Shaw *et al.*, 2006), which is expected to support students in experiencing more real-life situations, and, thus, develop a better level of enterprise skills.

Furthermore, hiring teacher-practitioners from different sectors of pharmacy will help students experience more contexts that reflect more real-life situations, which might help students develop a higher level of skills that better meets the needs of the different sectors of pharmacy. This might be valuable as the findings of this research have suggested that different sectors of pharmacy could possibly stress the importance of some enterprise skills more than others. This is not considered as a decisive result since the objective of this research was not to compare the different sectors, however, it might give an indication that different needs might exist among different sectors of pharmacy and possibly have to be considered by HEIs through the educational process, which should add more value to the role of teacher-practitioners from different sectors of pharmacy.

Another important finding also highlighted by this research is the importance of training academics on their roles as facilitators since lack of awareness of the requirements of this role by many academics is leading to weak application of experiential learning approaches at pharmacy schools including PBL, EBL and CBL. To achieve this, some schools have already placed having a higher degree in teaching and learning as a requirement by any academic at their schools. Such enforcement of having training, workshops or degrees in the area of teaching and learning by the management of schools is seen in this research to support the

role of academic facilitators in ways that enhance their application of the various experiential learning approaches and, thus, the development of students' enterprise skills.

Regarding the vehicles aspect, this research emphasised the importance of communicating the learning outcomes with students, so they would know the criteria upon which they would be assessed. In this way, the roles of academics and students will be identified as well as the learning deliverables expected, thus, allowing both academics and students to take part in the assessment process, which is expected to help students develop better self-assessment skills (Guirdham and Tyler, 1992). Pittaway *et al.* (2009) mentioned that there are methods for delivering and others for assessing enterprise education, and the application of traditional or innovative methods can take place in either or both, but highlighted the need for further research investigating the application of innovative approaches in either or both of the delivery methods and assessment methods. This research supports applying criteria-referenced assessments where students will be formally assessed based on criteria that would be clearly communicated to them in advance. The research also supports applying continuous integrated assessments which have been supported by McDonald and Savin-Baden (2004) in the context of PBL. So instead of having students assessed based on their final output, they would be assessed on their whole learning process. That would include assessment of their engagement in the aspects of experiential learning, including, for example, their team-working skills, approach to tackling problems, seeking references, time management, communicating with facilitators and other team members and engaging in self and peer assessments, where the value and contribution of these activities can be explained by students in portfolios and personal logs which are among the innovative assessment methods.

With regard to the final aspect of experiential learning, the mode, findings of this research support the argument of the Survey of Entrepreneurship in HEIs in Europe (2008) that

application of enterprise education at HEIs is unlikely to succeed without having the support of the top management at institutions. This research has pointed out an important gap in the application of experiential learning approaches at pharmacy schools where these approaches are almost always applied on an individual level by academics who are personally interested in applying them. Application of these learning approaches is not incorporated as part of school strategy or philosophy which is leading to the unsystematic application of problems, as well as the application of innovative and didactic teaching in an unorganised manner. In other words, students cannot see how learning helps them develop their enterprise skills over the years, and the same mistakes can be repeated over and over. So far, the noted efforts in some schools are on integrating or contextualising the knowledge of students and not their skills. This research supports incorporating experiential learning approaches as part of schools' strategy or philosophy in ways that consider how students' enterprise skills should develop over the years alongside their knowledge. This should help in setting clearer assessment criteria that consider enterprise skills, thus, helping academics communicate the learning outcomes with students who accordingly become more aware of how the learning process is contributing to the development of their enterprise skills.

Last but not least, the findings of this research have suggested that there are external factors that are outside the control of HEIs that might affect students' ability to demonstrate enterprise skills in the real-world even when HEIs work on developing those skills. For example, the absence of professional role models that reflect the professional role of pharmacists in the real-world is described here. Such an issue could arise possibly because the educational process emphasises the professional role that should be undertaken by pharmacists in all sectors, but this might create some confusion in students when they see that the situation in real-life is different, which might accordingly impact their ability to demonstrate enterprise skills in this new unfamiliar context. This issue was also related to

other factors like the lack of government support to the professional roles of pharmacists, thus, leading these roles to become often distorted by the business-oriented organisations, especially in the retail sector. However, further research is still needed to investigate this area.

10.3. CONTRIBUTION OF THIS THESIS

This research contributes to knowledge by adding more clarity to the process of enterprise education and the value that experiential learning can add to it. In other words, besides the importance of the educational process in developing students' knowledge, the research highlights the value of the educational process in developing students' enterprise skills and ability to carry out tasks through education '*into*' enterprise. Thus, this research begins to fill the gap in academic literature by proposing methodological developments into the process of delivering enterprise education and setting distinguishing characteristics of education '*into*' enterprise. While current research has called for exploring the value of student-centred learning approaches in enterprise education, this research focuses attention on aspects through which experiential learning leads to the development of these skills. In doing so, this research has helped to build understanding as to how enterprise skills are developed while highlighting the importance of the context in the development of those skills, as well as the importance of the context in making those skills transferable.

In this regard, this research has highlighted the importance of embedding education '*into*' enterprise across all modules in a programme in ways that help students experience real-life situations that are relevant to all the real-world jobs/careers available for them once they graduate. So instead of focusing on the development of generic skills in practice-related courses in pharmacy education, this research emphasises the need for involving science-related courses as well in ways that integrate both courses together, thus, helping students realise the relationship

between them as well as their application in the various real-life situations. Here, two original models were developed (Figures 10.1 and 10.2) describing how the development of enterprise skills is affected by the contexts in which they are developed, and that having enterprise skills developed in one context does not necessarily mean the ability to demonstrate these skills in other contexts. In other words, this research highlighted that the more an individual is engaged in different contexts where he/she gets the opportunity to develop his/her enterprise skills, the more this individual's enterprise skills become transferable. It is understood that such a proposition could impose more challenges on HEIs to consider various real-life situations in the curricula that reflect the various job/career options available for graduates, especially that pharmacy is a scientific degree that is already packed with knowledge, and academics are under a lot of pressure to deliver a large amount of information to students within a limited time. However, besides helping students in developing greater awareness about the job/career options available for them once they graduate, such exposure is seen in this research as desirable since it is expected to help students develop a range of enterprise skills in different contexts in ways that could possibly meet more closely the requirements of employers in the marketplace.

Through this exploration, this research also contributes to adding more clarity to approaches of experiential learning, and how HEIs could maximise the benefits gained from them by utilising them as means to education 'into' enterprise. An original model was developed (Figure 10.3) describing the six suggested aspects of experiential learning and how they relate to the development of students' enterprise skills. This model also helped in pointing out some gaps that need to be addressed in order to increase the value of experiential learning in developing students' enterprise skills while developing their knowledge simultaneously. Among the important issues identified here is including the application of experiential learning approaches as part of school philosophies or strategies to ensure their application by all academics across all modules, rather than having their implementation as a personal choice by academics who are interested in

applying them. This issue was also seen to help in integrating the application of experiential learning approaches across modules in ways that help students realise how these approaches add to their skills besides adding to their knowledge. Furthermore, including experiential learning approaches as part of schools' philosophies or strategies should also urge schools to invest in developing more qualified academics who are capable of developing students' skills and knowledge more effectively.

The research also contributes to practice by proposing an outline for developing the educational process in general and the pharmacy education process more specifically. Thus, the research helps academics in HEIs decide more specifically on what needs to be taught to students and how, while at the same time providing students with a learning experience that is more relevant, valuable and interesting, in such ways that are expected to contribute to developing a strong and skilled workforce with the necessary level of skills needed to support the growth and success of any organisation.

On a personal level, the researcher started this research with an interest in investigating how pharmacists' enterprise skills could be developed. However, throughout the research this developed into a more holistic interest in studying how educational systems could be developed in ways that relate enterprise education to experiential learning approaches and learning systems in general, which is seen as an originality/value point of this research. Accordingly, this has intrigued the researcher to conduct further research in this field in the future in areas that are described in more detail in Section 10.6 about recommendations for future research.

10.4. LIMITATIONS OF THE RESEARCH

There are several limitations to this research, which will be discussed in this section. In this research, the researcher interviewed pharmacy employers, academics and students in order to gather their views and study their experiences in areas relevant to this research. It is acknowledged

that this might lead to potential bias in terms of the researcher's own background and experience in pharmacy. This limitation was minimised through adopting Gadamer's hermeneutics views which see that interpretation is actually the point where the horizons of both the researcher and the text fuse at points of common understanding, so prejudices of the researcher are neither completely bracketed nor imposed on the findings. The researcher's personal beliefs, role and contribution to this study were discussed in detail in a reflexive manner in Chapter 4 (Section 4.4).

Yet, it is acknowledged that it is not possible to reach complete objectivity in social research, which is an issue that can have limitations on the confirmability of results. To minimise this limitation, almost all interviews were recorded and transcribed. At the stage of the analysis of findings, TA was rigorously applied and data extracts from interviewees that describe what they said in the interviews were carefully included without discussing the researcher's personal views. Reflective interviews were also applied to ensure that the researcher's interpretation of findings reflects the interviewees' views rather than the researcher's. In the Discussion Chapter, however, the researcher's personal views were introduced, but again care was taken to make a distinction between the interviewees' views, the literature, and the researcher's own personal views, while showing relations and contradictions between them.

In sampling, purposive as well as snowball sampling were adopted to select participants in the study. Employers from retail, hospitals and industry were selected, and academics teaching both practice-related and science-related courses were also selected. The interviews aimed at gaining in-depth descriptions of individual experiences rather than generalising findings or making comparisons between the different groups. The interviewees described experiences from their own perspectives while the researcher probed issues without influencing the direction of the discussion. Accordingly, as no claims were made that this sample is representative of the whole population, it is acknowledged that this might have some limitations on the transferability of results, as is the

case in any qualitative research. Thus, this study aimed to describe a good practice rather than discover the best practice in applying enterprise education and developing enterprise skills. Measures to minimise this limitation are discussed in detail in Sub-Section 4.8.2 and generally included the number and the criteria of respondents, the number and length of interviews conducted, the number, ranking and geographic distribution of HEIs from which the pharmacy academics' sample was chosen, as well as the time period over which the data collection process took place. A further limitation on the transferability of results is due to contextual limitations of the study which was conducted in the pharmacy education context. It is hoped that findings of this research would be of value in other educational contexts; yet, it cannot be claimed that those findings can be generalised or transferred to other contexts similarly.

A further limitation of this study is its focus on various issues in the application of enterprise education and the development of enterprise skills mostly from the perspective of academics. To minimise this limitation, points of view of employers and to a lesser extent students were considered. However, a more encompassing framework that achieves more holistic connectivity between the three parties could add more value.

10.5. RECOMMENDATIONS FOR FUTURE RESEARCH

Previous research has called for investigating the methods and objectives of enterprise education and its role in developing the necessary enterprise skills in specific discipline-based approaches. This issue has been addressed in this research where enterprise education and the development of enterprise skills have been investigated in the pharmacy education context. Nonetheless, despite the value of conducting this research in a non-business education context, it would be valuable to see how the findings of this research would or would not be comparable in other science-related contexts, especially as it cannot be claimed that the findings of this research are generalisable as discussed earlier. Furthermore, in certain technical and scientific disciplines, it might be found that

entrepreneurship is of more significance than enterprise, as in instances where student project work has the potential to be developed into a commercializable design or product. It would be interesting here to research the value of enterprise education in such disciplines where the challenges might even be greater.

Additionally, this research has highlighted the importance of involving problems that reflect real-life situations in HE; however, it would be valuable to conduct research that investigates in more detail how theory and practice can be bridged during HE, and how the educational process can be brought closer to the real-world, especially in vocational degrees. Such research can be done by highlighting the extent of the value of relationships between HEIs and real-world organisations, to what degree they are being utilised and the kind of obstacles that hold back establishing these relationships.

In the pharmacy context, this research has suggested possible differences in terms of the enterprise skills needed among employers in different sectors of pharmacy. However, this finding was indicative rather than decisive, and more research in this area would be valuable, especially since about 90% of pharmacy graduates choose careers in the retail sector. This might suggest that, besides focusing on developing students' skills in practice and science-related contexts, pharmacy schools should probably focus on developing skills in contexts that reflect business-related contexts as real-world pharmacy environments. This should help students develop the skills necessary for the retail sector, which are currently relevant to more than 90% of graduates. Such an issue would bring suggestions to several changes in pharmacy curricula and, thus, need to be thoroughly researched before such recommendations could be made.

Last but not least, this research has suggested that there can be external obstacles that might impede the demonstration of enterprise skills by recent graduates, where such obstacles are not controlled by HEIs. Yet, this finding was part of an aspirational objective as the literature in this

area is still very weak, which opens the door for future research investigating this aspect in the future.

10.6. CONCLUSION

This chapter has highlighted the conclusions of this research whereby the development of enterprise skills through HE was discussed while pointing out the significance of the contribution of experiential learning approaches in this area. The chapter provided a clarification of the whole picture reflected by this research, followed by a detailed discussion of the main research conclusions. Finally, the contribution of this research was highlighted followed by an indication of recommendations for future research.

All in all, this study has stressed the value of enterprise education in HEIs, and the importance of paying more attention to this education as part of schools' strategies and philosophies. The study has helped in clarifying how enterprise skills are developed and how they become more transferable while pointing out the importance of the contexts in which they are developed and the contexts in which they are demonstrated. The study also emphasised the extent of the contribution of experiential learning approaches as means for education '*into*' enterprise, and pointed out aspects that need to be addressed in order to maximise the value of these learning approaches in developing students' enterprise skills in pharmacy education and hopefully other learning contexts as well.

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APPENDICES

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APPENDIX 1:

General Guideline for Questions in Employers' Interviews

1. For purposes of this research, the following list of enterprise skills was compiled from several resources to represent the researcher's interpretation of such skills.

According to your own interpretation; kindly rank the importance of each of the following skills on a scale of 1 to 10 (1 being the least important and 10 the most important).

(Relates to objective 1)

	Ranking importance (Out of 10)
• Creative thinking, idea generation and thinking outside the box	
• Flexibility in doing things	
• Decision making	
• Conceptual thinking	
• Resourcefulness & researching to explore and decide on what is needed	
• Being up for responsibility and a leadership role	
• Problem evaluation and solving skills	
• Ability to assess situations/ ideas and achieve results	
• Assertiveness, confidence and self awareness	
• Networking, and building and managing relationships	
• Influencing and persuading others (including stakeholders)	
• Reflective thinking; including learning from relationships & experiences	
• Presentation and negotiation skills	
• Good written communication	
• Team skills and working with others	
• Defining and allocating tasks	
• Numeracy and computer literacy	

2. In your job, do you get to interact with: **(This question aims to confirm that respondents deal with recent pharmacy graduates)**

Pharmacy graduates (X)

Pharmacy students (X)

None ()

3. Besides the basic knowledge, do you think that universities should focus on developing the pharmacy graduate's transferable skills? (Or should this be the responsibility of their employers after they graduate?) **(Relates to objective 1)**
4. With the pharmacists you know, do you think that universities are developing sufficient enterprise skills for pharmacy students? (Matching with the needs of the marketplace?) Basically, are pharmacy graduates demonstrating the required skills? **(Relates to objective 1)**
5. In your opinion, do you think that demonstrating a range of generic transferable enterprise skills by graduates could help them acquire a job more easily? **(Relates to objective 1)**
6. In your opinion, what more could be done by universities to support students in gaining the required skills? **(Relates to objective 2)**
7. Do you feel universities appreciate the concept and value of enterprise skills for pharmacy students? Basically, do they understand employer's needs? **(Relates to objective 2)**
8. What do you think are the pharmacy students' perceptions as to the value and benefit of enterprise skills, and the need to develop these as part of their curricula? Basically, do they understand employer's (working environment's) needs? **(Relates to objective 1)**

Appendix 2

General Guideline for Questions for Academics' Interviews

- 1) Besides the basic knowledge, do you think there is a need for pharmacists who are capable of demonstrating a range of generic transferable skills? **(Relates to objective 1)**
- 2) Would you consider lectures at your school of pharmacy to be taught generally in a traditional didactic lecture format or a participative style one? **(Relates to objective 3)**
(Does the number of students in class rooms affect this at your school of pharmacy?)
- 3) At your pharmacy school, is there a general awareness of the concept of enterprise education, in terms of embedding enterprise into curricula? **(Relates to objective 2)**
- 4) Is this focus on developing a range of generic transferable skills for all pharmacy students in general, i.e. in the science and practice divisions, or is the focus mainly on developing skills in clinical pharmacy and pharmacy practice only **(Relates to objective 2)**
- 5) From your experience, rank the extent to which you believe the following skills are developed in pharmacy students through the educational process? **(Relates to objective 2)**

Skills	Extent to which skills are developed (Out of 10)
• Creative thinking, idea generation and thinking outside the box	
• Flexibility in doing things	
• Decision making	
• Conceptual thinking	
• Resourcefulness & researching to explore and decide on what is needed	
• Being up for responsibility and a leadership role	

• Problem evaluation and solving skills	
• Ability to assess situations/ ideas and achieve results	
• Assertiveness, confidence and self awareness	
• Networking, and building and managing relationships	
• Influencing and persuading others (including stakeholders)	
• Reflective thinking; including learning from relationships & experiences	
• Presentation and negotiation skills	
• Good written communication	
• Team skills and working with others	
• Defining and allocating tasks	
• Numeracy and computer literacy	
• Time management	

- 6) We cannot neglect the role of real-world experience in developing these skills, but according to the feedback I got from employers in the marketplace pharmacists must have at least a basic level of these skills once they graduate. To what extent do you believe this is a shared experience between HEIs and employers (e.g. 50/50?) **(Relates to objective 1 and 2)**
- 7) Would you like to talk to me about PBL at your school? How do you apply it? What are the objectives of its application? **(Relates to objective 3)**
- 8) What type of educational approaches do you apply to reinforce application of experiential learning at your pharmacy school? **(Relates to objective 3)**
- 9) So can we say that experiential learning approaches at your pharmacy school follows an organised scheme set in coordination between all divisions at the school or is it more of a personal tutor's effort? **(Relates to objective 3)**
- 10) How do you assess students? Do you try to assess their skills as well as their knowledge? How? What sort of things do you focus on in assessments? What type of evidence do you require students to submit for evaluation? **(Relates to objective 2)**

- 11) How cooperative are academics in applying and assessing experiential learning? Do they try to encourage students to participate in the learning process by acting as mentors or facilitators in a classroom rather than lecturers who decide on the whole learning content and lecture it? **(Relates to objective 3)**
- 12) In your opinion, are pharmacy students aware of the need for innovative curricular changes that are necessary to develop their skills? In other words, do they appreciate the need to develop generic transferable skills? **(Relates to objective 1 and 4)**
- 13) Do you think that pharmacy graduates nowadays are capable (once they graduate from your school of pharmacy) of demonstrating the necessary skills that would allow them to effectively interact with their working environments? **(Relates to objective 1)**

Appendix 3

A detailed listing of the codes and data extracts included under:

THEME ONE: Enterprise skills in the pharmacy context

(Analysed in Chapter 5)

1) Codes under Theme One:

THEME ONE: Enterprise skills in the pharmacy context	
Sub-themes and sub-sub-themes	Codes
<u>Sub-Theme 1.1:</u> Are enterprise skills important for pharmacists? The importance of ability of pharmacists to demonstrate enterprise skills in the marketplace	<ul style="list-style-type: none"> • <i>Skills are important for pharmacists</i> • <i>Knowledge is not the only important thing</i> • <i>Skills are important to enhance the image of pharmacy</i> • <i>RPSB is increasingly focusing on skills</i> • <i>Skills are considered in hiring</i> • <i>Some skills might be more important in certain sectors</i>
<u>Sub-Theme 1.2:</u> Who is responsible for developing pharmacists' enterprise skills? <u>Sub-Sub-Theme 1.2.1:</u> Employers' Perspectives <u>Sub-Sub-Theme 1.2.2:</u> Academics' Perspectives	<ul style="list-style-type: none"> • <i>Real-life experience contributes more to developing skills</i> • <i>HEIs should contribute to developing skills</i> • <i>Developing skills is a shared responsibility</i> • <i>Developing skills cannot be achieved without real-world experience</i> • <i>Developing skills doesn't mean ability to demonstrate them</i>
<u>Sub-Theme 1.3:</u> The level of skills demonstrated by recent pharmacy graduates in the real-world marketplace <u>Sub-Sub-Theme 1.3.1:</u> Employers' Perspectives	<ul style="list-style-type: none"> • <i>Employers are not satisfied by the level of graduates' skills</i> • <i>Ability to demonstrate skills is a personal thing</i> • <i>Increased awareness about role as health advisors</i> • <i>Clinical knowledge and skills are important</i> • <i>Education is too much knowledge focused</i> • <i>Education is too much clinically focused</i>

<p><u>Sub-Sub-Theme 1.3.2:</u> Academics' Perspectives</p>	<ul style="list-style-type: none"> • <i>Least satisfied by the level of skills in industry sector</i> • <i>Downsides for the lack of confidence and communication</i> • <i>Management skills are important especially in retail</i> • <i>Suggestions for developing skills through the educational process</i>
<p><u>Sub-Theme 1.4:</u> The value of enterprise skills for pharmacy students</p> <p><u>Sub-Sub-Theme 1.4.1:</u> Employers' Perspectives</p> <p><u>Sub-Sub-Theme 1.4.2:</u> Academics' Perspectives</p> <p><u>Sub-Sub-Theme 1.4.3:</u> Students' _Perspectives</p>	<ul style="list-style-type: none"> • <i>Graduates are lacking some skills</i> • <i>Graduates are capable of facing challenges of real-world</i> • <i>Students realise the significance of skills after they graduate</i> • <i>Students realise the importance of skills</i> • <i>There will always be a range of students</i> • <i>Students realise the importance of skills</i>

2) Data extracts related to each code under Theme One:

SUB-THEME 1.1:

Are enterprise skills important for pharmacists? The importance of ability of pharmacists to demonstrate enterprise skills in the marketplace

Code	Data extract
<p>Skills are important for pharmacists to deal with the daily challenges of their jobs</p>	<p>E1(R): <i>'Having these skills is important for pharmacists in the workplace, for example they will need to work in teams and communicate with patients...'</i></p> <p>E4(R): <i>'Pharmacists should be able to take on a leadership role, be confident and know how to serve and help the communities in which they work'.</i></p> <p>E5(R): <i>'they need to be able to talk to customers and understand what they need, and the need to be assertive'.</i></p> <p>E12(I): <i>'We don't want pharmacists who refer to their managers about every small issue. We want pharmacists who can assess different problems, think about them, come up with solutions, and then come to their managers to discuss these solutions and offer their suggestions'.</i></p> <p>A17(S): <i>'I suppose it also goes with the question of what university</i></p>

	<p><i>education is about anymore? Because traditionally when you read for a degree you weren't focusing necessarily on a job, or an end point, it was learning for the sake of learning. Whereas now we've got to be realistic, you know students come to university to get skills to get employed so perhaps it's our responsibility to train them to do a job'.</i></p>
<p>Knowledge is not the only important thing is pharmacy studies</p>	<p>A1(S): <i>'The whole point in pharmacy is not going out with a whole lot of knowledge; it's also having the skills to be able to identify what to do'.</i></p> <p>A5(P)RI: <i>'...what we actually need is the skills to be able to apply that knowledge in real-life, the knowledge is important but it's kind of foundational knowledge that you need to build on and know how to apply, and be able to access that knowledge and understand it through having those skills'</i></p>
<p>Developing students skills is important to enhance the image of pharmacy which is not currently as bright as it used to be in the past and definitely not as bright as it should be</p>	<p>A1(S): <i>'...I don't know whether the pharmacy got lost a little bit? I don't think it's a profession where we've got much of a mission statement; and we don't know exactly what we're here for!!!'.</i></p> <p>A1(S): <i>'...I don't think we have an identity, not much of what anyway... I think we only need to refocus... I think there is a profession where we do need to understand exactly what we are doing? What is our role?... we are struggling to find out our niche, because for so long we have been treated as kind of a technical profession'.</i></p> <p>A14(P): <i>'I don't think the universities still know exactly what they want, and a lot of the stuff we have are still traditional and attached to the science and don't know the application of the science they have in practice...'</i></p> <p>A5(P)RI: <i>'...certainly some pharmacists are not performing the role of pharmacists... I think we are trying to develop pharmacists for roles that we aspire and perhaps are not available as they should at the time being, I guess we want to see pharmacists who can develop the profession and who have the skills necessary for pharmacists...'</i></p>
<p>RPSB is increasingly focusing on skills development alongside knowledge</p>	<p>A5(P): <i>'I think it's all changing with the new standards for pharmacy education and it will definitely be much more around skills and competencies, and to be able to show they have the confidence to do something. So we help to kind of gear them up to these types of standards'.</i></p> <p>A1(S)RI: <i>'The council is going pretty much into skills necessary to be a good pharmacist... moved away from the student must KNOW all this and that... and moved to a more skill-based approach... We're trying to re-emerge as a profession and applying those would hopefully make better pharmacists'.</i></p>

<p>Skills are considered by employers in the hiring process</p>	<p>E1(R): <i>'...If they hire someone nowadays I think the skills would be important yes, but when I was hired 15 years ago it wasn't so important...'</i></p> <p>E2(R): <i>'When I interview someone for a job I try to evaluate both the knowledge and skills. I hope to find the necessary skills in pharmacists who can cope with situations, have people skills and management skills.'</i></p> <p>E3(R): <i>'When we hire someone we evaluate both; the knowledge and skills, both are important for working here'.</i></p> <p>E7(R): <i>'Yes, I need these skills for someone working at the pharmacy to accommodate the customer and be able to contact with him, sometimes about private issues. I need a pharmacist who is confident enough and who can handle customers alone especially when I get busy preparing prescriptions at the back'.</i></p> <p>E12(I): <i>'Yes, definitely. You don't want an employee who is shy and lacks the confidence... it is important for pharmacists to have a strong character and skills to deal with the various emergencies we deal with every day, and be able to set priorities and action plans'.</i></p>
<p>Some skills might be more important in certain sectors of pharmacy than in others</p>	<p>E2(R): <i>'I hope to find the necessary skills in pharmacists who can cope with situations, have people skills and management skills. I hope to find the necessary skills in pharmacists who can cope with situations, have people skills and management skills. I have worked in hospitals as well and it's a bit different there; I guess pharmacists there need to have more knowledge and more skills...'</i></p> <p>E4(R): <i>'...in retail for example communication skills are very important; you don't want a pharmacist with a bad attitude in a pharmacy for example'.</i></p> <p>E6(R): <i>'...In hospitals, I believe pharmacists are expected to do ward rounds where they should establish trust and good communication with patients, and be able to talk to and convince physicians who happen to have limited knowledge about drugs and are mainly responsible for diagnosing a disease, where as prescribing decisions should be left for a pharmacist'.</i></p> <p>E9(H): <i>'I think hospitals are different from retail, I think in retail you need more practical skills. In hospitals it is more about clinical knowledge. I think the skills needed in hospitals are different from those in retail'.</i></p> <p>E12(I): <i>'Yes, definitely. You don't want an employee who is shy and lacks the confidence... it is important for pharmacists to have a strong character and skills to deal with the various emergencies we deal with every day, and be able to set priorities and action plans'.</i></p>

SUB-THEME 1.2:

Who is responsible for developing pharmacists' enterprise skills?

SUB-SUB-THEME 1.2.1:

Employers' Perspectives

Code	Data extract
Real-life experience is more important for developing pharmacists' enterprise skills as it contributes more to developing them	<p>E1(R): <i>'...extra skills like critical thinking can come with practice...'</i>.</p> <p>E4(R): <i>'usually pharmacists build these skills after they graduate as part of their work and experience'</i>.</p> <p>E7(R): <i>'I don't think the level of skills demonstrated by a pharmacist has to do with his/her grades, but more with experience, the more experience you have the better your skills. With time pharmacists become more confident and better communicators'</i>.</p> <p>E5(R)RI: <i>'I would give it a 80/20 break down; 80% of the skills I have today I learned during my pre-reg training year and that corresponds to what you described as real-world experience'</i>.</p> <p>E10(H)RI: <i>'...I'm not saying they can't be exposed to this area of practice when they do their role plays etc. in a university, but it's different to do a role play than to actually live it!'</i>.</p>
Employers agree that HEIs should take part and contribute in developing students' enterprise skills	<p>E3(R): <i>'Universities should try to bring out these skills in pharmacists and find ways to assess them and get feedback about them'</i>.</p> <p>E4(R): <i>'I believe universities should take part of the responsibility to develop pharmacists' skills before they graduate'</i>.</p> <p>E7(R): <i>'...The University can play a role here by providing pharmacy students with a base of skills which they can build on later...'</i>.</p> <p>E10(H): <i>'...I would absolutely support having a base of skills for fresh graduates...'</i>.</p> <p>E12(I): <i>'Yes, I think pharmacy students should be exposed to various experiences that allow for building their skills during their studies'</i>.</p>

SUB-SUB-THEME 1.2.2:

Academics' Perspectives

Code	Data extract
Academics see that developing enterprise skills is a shared responsibility between HEIs and the real-	<p>A8(S): <i>'I think it's a shared responsibility and I think our students are very lucky because they have a lot of training in the hospital and they pick up on a lot of skills there'</i>.</p> <p>A10(P): <i>'As a vocational degree I guess most of the responsibility lies with us... our aim is to produce graduates who are confident to be pharmacists, and to be a good pharmacist you certainly should have a good grounding in those fields and if we don't do that we're failing our</i></p>

world marketplace	<p><i>duties to the profession...’.</i></p> <p>A16(P): <i>‘I would say it’s a 50/50 shared responsibility’.</i></p> <p>A19(P): <i>‘I think it’s a 50/50 responsibility... we have clinical teaching that is done by practitioners; these people do a very good job ensuring that students are gonna do quite well when they leave. And that’s the philosophy of our course, to deliver graduates who are ready for the practice’</i></p>
Academics saw that that even if HE equipped students with a good level of these skills, developing enterprise skills cannot be fully achieved without real-world experience	<p>A2(P): <i>‘There isn’t much point in developing those skills if you could have them in six months would there? You would expect to see a difference between a junior medical student and an F1 doctor wouldn’t you? And the same goes for pharmacists. And maturity comes with dealing with these skills in the real-life situations which are different from here, like when you have a call at 2:00 a.m. to deal with a situation’.</i></p> <p>A4(S): <i>‘...and it’s very much like being a pharmacist, you will get to know by experience that when someone enters a pharmacy ‘Oh, that man is going to be a problem’ after a while, but you don’t when you’re nearly qualified’.</i></p> <p>A10(P): <i>‘we are not aiming to produce graduates who are good pre-registration pharmacists we are aiming to produce graduates who could be good pharmacists but need a pre-registration year to sum up the skills’.</i></p> <p>A14(P): <i>‘I think our sandwich course students are. Maybe our fourth year students still lack a bit of what is needed but they still have more practice to go through in their pre-registration year’.</i></p> <p>A1(S)RI: <i>‘...the amount of exposure we give them here is like a fortnight in the real-world...’</i></p>
Developing skills through the educational process in HE is one thing and demonstrating these skills in real-world is another	<p>A1(S): <i>‘we try to develop these skills, but whether they have them or not is something else’</i></p> <p>A1(S): <i>‘You know this is quite hard because it’s one thing trying to get them to do, and another thing for them to do it’.</i></p> <p>A2(P): <i>‘yes they do know about these skills and the need for them... But whether or not they have them at the work place I don’t know and I won’t be surprised if they don’t’</i></p> <p>A7(S): <i>‘we work quite hard trying to develop these skills in our students, but the students are very reluctant’.</i></p> <p>A12(P): <i>‘I can tell you if I think they’re flexible or not in doing things but can’t tell you if they are going to be so in practice’</i></p> <p>A17(S): <i>‘I think that even when we are trying to develop the skills, I sometimes wonder about the success’</i></p>

SUB-THEME 1.3:**The level of skills demonstrated by recent pharmacy graduates in the real-world marketplace****SUB-SUB-THEME 1.3.1:****Views of Employers**

Code	Data extract
Employers are generally not satisfied by the general level of skills of recent graduates, especially communication and ability to show confidence	<p>E2(R): <i>'Pharmacists usually get exposed to real-life situations immediately after finishing their studies and they find themselves unable to deal with people and manage different situations'.</i></p> <p>E5(R): <i>'Graduates are underprepared, especially when it comes to some of the most essential skills as communicating with patients, they lack the necessary communication skills. They also lack enough assertiveness and seem to be weak in decision making'.</i></p> <p>E5(R): <i>'...especially that most fresh graduates present with a low confidence level'.</i></p> <p>E9(H): <i>'...in retail and industry they would need more management skills from the beginning but I don't think these skills are being focused on by universities, some pharmacists would love to work for industry but they don't really know what industry expects from them and what they need to have to enter this sector'.</i></p> <p>E10(H): <i>'...they don't put an importance on the actual delivery of safe medicine which is a core to our service, Organisational skills particularly, I think, need to be developed for the multi tasking we are involved in here to be able to use knowledge but at the same time be able to work in a busy environment and under pressure...'</i></p>
The level of skills demonstrated by students and recent graduates is a personal thing that varies from one person to another	<p>E3(R): <i>'...I have to say that some can be very confident and others not, depends on the person really and not the university education'.</i></p> <p>E10(H): <i>'...It's a maturity thing I think, some students who come here, even though they finished their five years of studying, can seem very immature, and we get other pre-reg students from sandwich courses who haven't finished their five year studying who are more knowledgeable, more motivated and more switched on, and we have other students who struggles'.</i></p> <p>E13(I): <i>'I think it depends on the students as well really'.</i></p> <p>E1(R)RI: <i>'...I don't think it's actually the course that's doing that, it's individual and there are some exceptions'</i></p> <p>E10(H)RI: <i>'I think it's very difficult, I think it's very individual depending on the students who come through'.</i></p>

<p>Employers saw that the growing clinical focus in education has increased pharmacists' awareness about their role as advisors and health care providers</p>	<p>E4(R): <i>'Graduates nowadays are generally more comfortable about dealing with people and handling customers in retail'.</i></p> <p>E5(R)RI: <i>'...I can see that my colleague pharmacists now see themselves differently from the slightly older pharmacists who see themselves as dispensers, i.e. they see their main role is to dispense drugs whereas I see my main role is to make sure that patients are taking the medication right and whether or not that is going to have any effects on them. So I see my role more of an advisor as opposed to a dispenser'.</i></p> <p>E5(R)RI: <i>'My job is dispensing, but the slightly older pharmacists they think the majority part of their job is dispensing, but now we've moved away from that to get more involved with the actually clinical role with the patients'.</i></p> <p>E5(R)RI: <i>'pharmacy has changed from solely a supply of medicines to a point of advise... I think that pharmacists today are more clinical'.</i></p>
<p>Employers saw that clinical knowledge and skills are important</p>	<p>E2(R): <i>'It is important for pharmacists to have these skills, Pharmacists usually get exposed to real-life situations immediately after finishing their studies and they find themselves unable to deal with people and manage different situations'.</i></p> <p>E5(R): <i>'... to be able to talk to customers and understand what they need and the need to be assertive...'.</i></p> <p>E1(R)RI: <i>'...pharmacology is important'.</i></p> <p>E1(R)RI: <i>'...we get in direct contact with the patients and it's our responsibility to make sure they get the right medication at the right dose. The doctors prescribe the medication and we make sure it's given to the patient right and they understand how they will take it. I think that's where we are. Giving advice and health care on a day-to-day basis and being able to satisfy patients and help them to use their medicines'.</i></p> <p>E5(R)RI: <i>'...my main role is to make sure that patients are taking the medication right and whether or not that is going to have any effects on them'.</i></p>
<p>Employers see that recent graduates have been taught in a way that is too much knowledge focused which doesn't help them realise the practical applications of their knowledge</p>	<p>E10(H): <i>'...they've had all the exams, managed to do all the theory, and their knowledge base is there... they can't connect the bits of knowledge they've learnt to a patient who has a co-morbidity or compliance issues, and putting it all together is difficult for them'.</i></p> <p>E11(I): <i>'they memorise facts just to pass the exam and then forget... when they come to work they find it very difficult to relate their knowledge to real-life'.</i></p> <p>E12(I): <i>'No, I don't think they present with a sufficient level of skills, and I believe one of the main reasons for that is that universities don't focus on the practical part of learning'.</i></p>

	<p>E5(R)RI: <i>'...what we need to do as pharmacists is to develop better relationships with other professions, and I don't think this is missing due to lack of knowledge, I think it's due to the lack of being able to communicate with other professions and I think this is the key for the pharmacy profession'</i></p> <p>E10(H)RI: <i>'...when you put them in a real-life situation on a ward with a patient who's got a multi-disease situation they struggle! They think they can do it and in some ways they are over-confident and yet they can't... it's different to do a role play than to actually live it!'</i></p>
<p>Employers see that recent graduates have been taught in a way that is too much clinically focused; so education needs to be more associated with skills, including management skills, alongside that knowledge</p>	<p>E1(R): <i>'Universities are definitely focusing more on clinical skills for students'</i></p> <p>E8(H): <i>'...At the beginning they think more of only the clinical skills and don't appreciate the need for delicate handling of people for example...'</i></p> <p>E9(H): <i>'...in retail and industry they would need more management skills from the beginning but I don't think these skills are being focused on by universities, some pharmacists would love to work for industry but they don't really know what industry expects from them and what they need to have to enter this sector'</i></p> <p>E11(I): <i>'...The pharmaceutical industry is crying out loud for good competent pharmaceutical scientists... Pharmacists aren't capable enough, they are scared, they're not exposed, and they're not confident. I believe they go more for careers in hospitals and retail because they're more exposed to these environments in university and they feel like this is what we know... Universities should expose students more to lab experiments and allow them to take part in research... Unfortunately, pharmacy education doesn't encourage scientists...'</i></p> <p>E10(H)RI: <i>'...perhaps the universities are providing them with higher expectations about what they would be doing once they qualify'</i></p>
<p>Employers were least satisfied by the level of skills demonstrated by recent graduates in the industry sector</p>	<p>E9(H): <i>'...in retail and industry they would need more management skills from the beginning but I don't think these skills are being focused on by universities, some pharmacists would love to work for industry but they don't really know what industry expects from them and what they need to have to enter this sector'</i></p> <p>E10(H): <i>'... when you place more emphasis on clinical skills I guess it'll be at the expense of pharmaceuticals and industry skills... and universities do tend to make the clinical part more exciting and the chemistry part is usually a bit more dull'</i></p> <p>E11(I): <i>'...The pharmaceutical industry is crying out loud for good competent pharmaceutical scientists... Pharmacists aren't capable enough, they are scared, they're not exposed, and they're not confident. I believe they go more for careers in hospitals and retail because they're more exposed to these environments in university and they feel like this is what we know... Universities should expose students more to lab experiments and allow them to take part in research... Unfortunately, pharmacy education doesn't encourage scientists...'</i></p>

	<p>E11(H): <i>'...pharmacists on the other hand can't cope with lab work, they weren't taught to handle it. I trained this pharmacist in a lab for a whole year once and then she left to go for retail saying that she couldn't cope with lab work. They feel it is too menial for them'.</i></p> <p>E12(I): <i>'...most pharmacy students complete their pre-reg in retail and these unfortunately are the ones that turn out with the least level of skills...'</i></p>
<p>Some of the main downsides for the lack of confidence and communication skills in recent pharmacy graduates</p>	<p>E5(R): <i>'Graduates are underprepared, especially when it comes to some of the most essential skills as communicating with patients, they lack the necessary communication skills. They also lack enough assertiveness and seem to be weak in decision making'.</i></p> <p>E5(R)RI: <i>'...what we need to do as pharmacists is to develop better relationships with other professions, and I don't think this is missing due to lack of knowledge, I think it's due to the lack of being able to communicate with other professions and I think this is the key for the pharmacy profession'.</i></p>
<p>Management skills are important especially for retail pharmacists, but not prioritised over pharmacy knowledge</p>	<p>E1(R): <i>'I still think the most important thing for a pharmacist is pharmacy, the knowledge, I don't think management would come into it but they would expect you to do it'.</i></p> <p>E8(H): <i>'Pharmacy schools need to get students to become more aware of management skills, people skills, communication skills...'</i></p> <p>E10(H): <i>'...Organisation skills particularly, I think, need to be developed for the multi tasking we are involved in here to be able to use knowledge but at the same time be able to work in a busy environment and under pressure...'</i></p> <p>E5(R)RI: <i>'...we're in a business, and when you're in a business your clinical skills are not seen as more important than your business skills...'</i></p> <p>E5(R)RI: <i>'...pharmacy is not only about drugs, it's about managing other people and resources'.</i></p>
<p>Employers in general gave some suggestions that might help developing pharmacists' skills through the educational process (Employers called for having more emphasis on practical application of</p>	<p>E6(R): <i>'...So I believe encouraging pharmacists to train in work settings during their studies in college would help them develop their knowledge and skills in such a way that would aid them in learning better'.</i></p> <p>E9(H): <i>'...give them more responsibility to organise things and perhaps be responsible for arranging tutorials and those sorts of things rather than having them spoon fed... they have to take responsibility for their own learning and know how they can get to learn something by themselves...'</i></p> <p>E11(I): <i>'...university education should be split 50% science and 50% practice... Universities should expose students more to lab experiments and allow them to take part in research... Unfortunately, pharmacy education doesn't encourage scientists and so pharmacy students don't feel like taking a part in research'.</i></p>

knowledge, as well as on industrial, analytical and research aspects in pharmacy education)	<p>E12(I): <i>'Most pharmacy students complete their pre-reg in retail and these unfortunately are the ones that turn out with the least level of skills. Universities should split the training hours for pharmacy students to include training in industrial plants, hospitals and pharmacies so that students can be exposed to different aspects of pharmacy applications that widens their perspectives and improves their skills'.</i></p> <p>E5(R)RI: <i>'... instead of doing your degree and then go out for one year pre-reg. you will do 6 months of studying and then 6 months of training... eventually gain a more holistic view...'</i></p>
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SUB-SUB-THEME 1.3.2:
Views of Academics

Code	Data extract
Academics agreed with employers that pharmacy graduates are still lacking some skills, especially confidence and communication skills, despite the efforts placed by HE	<p>A5(P): <i>'I think things like confidence, I think is an important area, and I think pharmacy probably hasn't been very good at that over the last years... I think that confidence is actually an important skill that a lot of students aren't really developing'.</i></p> <p>A5(P): <i>'I mean they have problems with numeracy, they have problems with being able to communicate and such like'.</i></p> <p>A10(P): <i>'...and they find it difficult to interact with other health team members, we do encourage them in 3rd and 4th years to interact and if they find something wrong they are encouraged to go and interact with doctors about it but they find that really really difficult, and we find that really really difficult to teach'.</i></p> <p>A13(P): <i>'I think they struggle with their confidence at the beginning because they suddenly get more responsibility...'</i></p> <p>A2(P)RI: <i>'I think pharmacists are lacking in confidence in general...'</i></p>
Academics believed that the output of pharmacy graduates is capable of facing the challenges of the real-world despite their lack of some skills	<p>A5(P): <i>'I think they probably are... they don't always show that here but when they leave I think that they do kind of jump up to the level'.</i></p> <p>A6(P): <i>'I think they are, but I don't think they find it easy, but I think they are well prepared and probably more prepared than they were 10 years ago'.</i></p> <p>A8(S): <i>'I think some of them are, and hopefully ultimately the majority of them would be. We appreciate that the profession is developing and so should the pharmacists'.</i></p> <p>A10(P): <i>'We are confident that our graduates are ready...'</i></p> <p>A17(S): <i>'I think we lay a good groundwork for them to go on...'</i></p>

SUB-THEME 1.4:

The value of enterprise skills for pharmacy students

SUB-SUB-THEME 1.4.1:

Views of Employers

Code	Data extract
Employers said that students realise the significance of enterprise skills after they graduate start a job and engage in real-life	<p>E1(R): <i>'Probably not, they are probably not given the opportunity, and they're probably naive at the moment until they are thrown into the big world and probably won't understand until they start working'.</i></p> <p>E5(R): <i>'Students do understand employer's needs but they find out about this later on during their experience. When they start to interact with customers and others at work they begin to value the need for having skills'.</i></p> <p>E7(R): <i>'I think students at university just want the grades, degree and job. But if someone told them about these skills and they realised their importance in the workplace they would have appreciated the need to develop them during their studies ... it would be much easier for them to start their career if they had these skills at the beginning...'</i></p> <p>E9(H): <i>'I don't think they do when they come, but they do as they go on'.</i></p> <p>E10(H): <i>'For students who complete their studies and then do the one year pre-reg. out, I think it is in that pre-reg. year that they start to bring it all together'.</i></p>

SUB-SUB-THEME 1.4.2:

Views of Academics

Code	Data extract
Academics mostly thought that students realise the importance of skills because they try to talk to students about the importance of skills to raise their awareness about that from beginning	<p>A1(S): <i>'I hope they do realise the importance of these skills. We do our best; we don't want to be ashamed of our students'.</i></p> <p>A2(P): <i>'yes they do know about these skills and the need for them, and the proof for that is in their portfolios and the fact they can write them and write about their communication skills and empathy skills and those sorts of things in the first year. It also shows in our accreditation reports when accreditors come and speak to our students and report that they do have an understanding. And I think it could be evidenced by the fact that our students could discuss those skills'.</i></p> <p>Academic 8: <i>'Certainly in our introductory sessions with hospital tutors we talk about the importance of these generic skills and communication and team work and the use of database, so with practicing pharmacists we try to show why we use this teaching approach and focus on these skills'.</i></p>

	<p>A16(P): <i>'...So that's what we tell them from the very beginning so they know that they've got to engage and work themselves'.</i></p> <p>A20(S): <i>'we make some efforts through induction, through managing students' expectations...'</i></p>
<p>Academics saw that despite raising students awareness about skills it's hard to know if they will realise the importance of these as there will always be a range of students</p>	<p>A7(S): <i>'They want a degree, they want a job, and that is for the vast majority. We have a minority maybe 10% who are really really good students, really inquisitive, they appreciate everything, we have the majority who want a job, and a minority who are really good'.</i></p> <p>A8(S): <i>'so some students enjoy this learning environment and others don't, it's too much hard work, and some enjoy a team environment and others can't find themselves there'.</i></p> <p>A10(P): <i>'...so we try to teach them the skills but the extent to which they're developed depends very much on the student'.</i></p> <p>A11(P): <i>'...we make it clear from the beginning that if you don't want to be active learners and don't want to engage in the course then don't come... I guess the more they get familiar with the process the more they appreciate it'.</i></p> <p>Academic 18: <i>'I think some of our students certainly in the early years don't really appreciate the need for those skills... and then when they're in actual practice then they'll appreciate'.</i></p>

SUB-SUB-THEME 1.4.3:

Views of Students

Code	Data extract
<p>Students realise the importance of skills</p>	<p>S2: <i>'having worked in the real-world while studying, I can say these skills are very important for any graduate'.</i></p> <p>S1: <i>'Placements should be integrated within the learning process more. I know it would be tough, but it would help a lot'.</i></p> <p>S2: <i>'I've been on a placement so I know the real-world contributes to developing those skills, but I think HEI should also work on developing them from year 1'.</i></p>

Appendix 4

A detailed listing of the codes and data extracts included under:

THEME TWO: Application of PBL and other modes of innovative learning at pharmacy schools in the UK

(Analysed in Chapter 6)

1) Codes under Theme Two:

THEME TWO: Application of PBL at pharmacy schools in the UK	
Sub-themes and sub-sub-themes	Codes
<u>Sub-Theme 2.1:</u> How do pharmacy schools view PBL?	<ul style="list-style-type: none"> • <i>PBL and other forms of innovative learning are applied</i> • <i>PBL is generally not applied in its pure traditional form</i>
<u>Sub-Theme 2.2:</u> What Sort of Learning Activities do Pharmacy Students Engage in?	<ul style="list-style-type: none"> • <i>Case studies are applied as learning activities</i> • <i>OSCE's are applied as learning activities</i> • <i>Experiments are applied as learning activities</i> • <i>Prescriptions are applied as learning activities</i> • <i>Learning activities are delivered in tutorials</i> • <i>Learning activities are delivered in laboratories</i> • <i>Learning activities are delivered in Placements/Real-world contexts</i> • <i>Learning activities are delivered in workshops</i> • <i>Learning takes place through small group learning and an academic facilitator</i> • <i>Generally, academics act as facilitators</i> • <i>As part of learning, students make portfolios</i> • <i>As part of learning, students make presentations, vivas and role plays</i> • <i>As part of learning, students prepare posters</i> • <i>As part of learning, students produce reports and essays</i> • <i>As part of learning, students prepare medicines reviews and pharmaceutical care plans</i> • <i>As part of learning, students to take part in seminars and conferences</i>
<u>Sub-Theme 2.3:</u> To what extent are PBL and other modes of innovative learning supported at pharmacy schools?	<ul style="list-style-type: none"> • <i>Teaching is a mixture of innovative and didactic teaching</i> • <i>Innovative learning activities are applied more as students progress</i>

<p><u>Sub-Sub-theme 2.3.1:</u> Does teaching at pharmacy schools follow a more didactic or a more innovative approach in general?</p>	<ul style="list-style-type: none"> • <i>Pharmacy schools encourage academics to move away from didactic teaching</i> • <i>Pharmacy schools encourage attending conferences to improve learning and obtaining PG certificates in learning</i>
<p><u>Sub-Sub-theme 2.3.2:</u> Do pharmacy schools encourage academics to apply PBL and other forms of innovative learning?</p>	<ul style="list-style-type: none"> • <i>There is no enforcement to apply innovative learning activities by schools</i> • <i>There is a lot of personal enthusiasm to make learning more interactive</i>
<p><u>Sub-Theme 2.4:</u> Issues influencing the implementation of innovative learning activities at pharmacy schools</p>	<ul style="list-style-type: none"> • <i>Academic's personality</i> • <i>Number of students</i> • <i>Aspects related to the modules themselves</i> • <i>Lack of sufficient funding</i>

2) Data extracts related to each code under Theme Two:

SUB-THEME 2.1:

How do pharmacy schools view PBL?

Code	Data extract
<p>PBL is applied at some pharmacy schools but other forms of innovative learning are also quite often applied alongside</p>	<p>A5(P): <i>'We do PBL in the third and fourth year when we go out to hospitals and in tutorials. We also have enquiry based learning in the first year, in chemistry'.</i></p> <p>A6(P): <i>'we only have one PBL course in the whole programme in the sense of pure PBL, but there are little pockets in other modules that could be described as EBL, so they don't follow the structured approach followed in PBL and they are more of inquiry self-directed learning approaches... So students attend the hospitals, we have groups of students, its case-based so they meet for discussions, go on wards, meet patients and that sort of thing'.</i></p> <p>A8(S): <i>'We use enquiry based learning which is a mix of PBL and other learning approaches... we divide students in teams of about 6... select a therapeutic area... write a report as a team... involves a lot of data base searching and thinking for themselves... 20 minute talk presentation as a team and sometimes you get highly creative teams...'.</i></p> <p>A10(P): <i>'We use case-based learning here rather than PBL...'.</i></p>

	A19(P): <i>'We use sometimes PBL and sometimes CBL which is almost the same. We use PBL from first year... and as we move on the learning becomes more case-based as we will be looking at actual clinical situations... We embed PBL and CBL with inter-professional learning...'</i>
Most academics did not relate the way they apply PBL to its pure traditional form which they saw as very structured and resource intensive	<p>A1(S): <i>'PBL is a very structured approach the way the medics use it, we don't apply that model properly in pharmacy, I can see it in hospital placements in Manchester but it's not applied in a structured way as in medicine'</i>.</p> <p>A2(P): <i>'PBL is not something that we try to badge as such here, but we do try to give students real-life pharmaceutical issues to deal with'</i>.</p> <p>A6(P): <i>'we only have one PBL course in the whole programme in the sense of pure PBL, but there are little pockets in other modules that could be described as EBL, so they don't follow the structured approach followed in PBL and they are more of inquiry self-directed learning approaches... So students attend the hospitals, we have groups of students, its case-based so they meet for discussions, go on wards, meet patients and that sort of thing'</i>.</p> <p>A10(P): <i>'We use case-based learning here rather than PBL. True PBL is done in medicine schools and it's difficult here because it's very very resource intensive to run it properly...'</i>.</p> <p>A14(P): <i>'Students will have more cases which they will resolve in groups, which is probably aligned with PBL though it's not PBL in its traditional format'</i>.</p>

SUB-THEME 2.2:

What Sort of Learning Activities do Pharmacy Students Engage in?

Code	Data extract
Case studies are applied as learning activities at pharmacy schools	<p>A1(S): <i>'...the interaction with physios and nurses when they're given a case study, not necessarily to solve the problem but to identify how they fit into it and how they work as part of the team..'</i></p> <p>A3(S): <i>'they do do group works between case studies, particularly on the formulation side'</i>.</p> <p>A5(P): <i>'students will work through groups on case studies and we do it for the whole class'</i>.</p> <p>A14(P): <i>'...we are trying to develop students who are better self learners and we try to involve different teaching methods like PBL and case methods... Students will have more cases which they will resolve in groups, which is probably aligned with PBL though it's not PBL in its traditional format'</i>.</p> <p>A16(P): <i>'... they have OSCEs where we've got an actor and do sort of a role play and have to do the counselling with the actor being the patient and they do a medicine's review and things like that...'</i></p>

<p>OSCE's are applied as learning activities at pharmacy schools</p>	<p>A12(P): <i>'... we have the OSCEs which are used quite extensively, students are given cases like for example Mrs. Blogging arrives, 'you don't know what's wrong with her', so Mrs. Blogging is a student and the other students are observing and trying to find what the problem is, and we usually work on one that is an overdose case, one interaction and one would be non-compliance where patients haven't done what they have been asked to do, so something gone wrong and we can have other things like drug reactions'.</i></p> <p>A13(P): <i>'...we get actors coming in acting as patients... without knowing how the patient will react and what's wrong with them, and then they have to deal with it... '.</i></p> <p>A14(P): <i>'... The assessments very and are linked to whether we're assessing knowledge or skills, so for some modules we're using OSCE's in the final stage whereby we assess communication skills and there we might have a separate assessment to assess knowledge like EMQ's, others might look at dispensing skills with a separate paper to assess the knowledge'.</i></p> <p>A16(P): <i>'... they also are presented with a case study and from that they have to do a medicines review form and that's part of their exam as well... they have OSCEs (Objectives, Structures, Clinical Examinations) where we've got an actor and do sort of a role play and have to do the counselling with the actor being the patient and they do a medicine's review and things like that... '.</i></p>
<p>Experiments are applied as learning activities at pharmacy schools</p>	<p>A2(P): <i>'...There'll be cases and experiments in formulations and compounding: how would you turn this into a medicine? '.</i></p> <p>A15(S): <i>'Sometimes we do experiments where we encourage them to get in touch with companies and ask them for samples. We also ask them to investigate issues with them about the formula they're working on and the quantities and volumes that companies might suggest in order to get ideas about that from outside the university and communicate with people'.</i></p>
<p>Prescriptions are applied as learning activities at pharmacy schools</p>	<p>A2(P): <i>'we always tell students if you want to become receptive pharmacists you don't call a doctor and say I found a problem, you should say there appears to be a problem with this prescription, I suggest a, b and c, and I prefer we go for c because so and so. And that's the pharmacist. The technician would identify the problem; the pharmacist would offer a solution... You have to take your part in it and show that not only this time it has been solved but the doctor knows now better than he knew before'.</i></p> <p>A2(P): <i>'...in the second half they will do prescriptions... and then will lead on to the problems and situations associated with these prescriptions'.</i></p> <p>A2(P): <i>'we usually offer them a problem in the form of a prescription or a patient situation in a case; but they have to identify the problem and ways in which they might solve it... '.</i></p>

	A13(P): <i>'...exercise to develop their professional skills where we do accuracy checking in dispensing by starting off with where an error has occurred...'</i> .
Learning activities are delivered to students in tutorials	<p>A5(P): <i>'We do run some tutorials where we analyse lectures on a very much an interactive base...'</i>.</p> <p>A8(S): <i>'...there's about 25 lectures and 15 tutorials and in the second semester'</i>.</p> <p>A14(P): <i>'At the moment yes we do that we put them in tutorial groups'</i>.</p> <p>A16(P): <i>'...so students will not be given all information in these tutorials but have to look it up to answer a set of questions. This should encourage their self-learning, responsibility and organisation skills, as well as their academic skills in doing research and using online resources...'</i>.</p> <p>A20(S): <i>'...we have cases and students learn through small tutorial groups and a number of different directional tutorials by members of staff'</i>.</p>
Learning activities are delivered to students in laboratories	<p>A1(S): <i>'...sometimes they'll need to prepare before a lab for example so they'll know which product they'll be working on so they won't enter the lab cold and not knowing what they'll do'</i>.</p> <p>A4(S): <i>'Yes, we do lab sessions in pharmacology'</i>.</p>
Learning activities are delivered to students in Placements/Real-world contexts	<p>A1(S): <i>'...they do go out on placements later on in their course'</i>.</p> <p>A2(P): <i>'From the very first day of the course students do day placements with pharmacists, so they engage in practice situations which they write about in their portfolios... these environments help them pick up communication and networking skills quite quickly, and the reflective writing skills'</i>.</p> <p>A5(P): <i>'They are certainly all encouraged to go and do work and do pharmacy work'</i>.</p> <p>A10(P): <i>'They do go out for some mini placements in first and second year'</i>.</p> <p>A16(P): <i>'...in the third year they asked to present a portfolio for hospital placement, but I think they also have to do a CPD, a reflective portfolio over four years'</i>.</p>
Learning activities are delivered to students in workshops	<p>A8(S): <i>'we talk about all the skills needed and the aims and objectives... in a two hour workshop and then they get four weeks to deliver that report we just talked about...'</i></p> <p>A17(S): <i>'...there are a lot of opportunities in workshops and we've got real data from Astrazenica, and real problems... produce students who can solve problems in the real-world, and not just know the basics of what's in a tablet and what's in a capsule... which will give them useful skills'</i>.</p>

<p>Learning takes place through small group learning and an academic facilitator</p>	<p>A3(S): <i>'they do do group works between case studies, particularly on the formulation side'.</i></p> <p>A5(P): <i>'We have about six in a group in a year, first we had a lot, about ten and sometimes more, but we reduced the number to about six which improved it... make it more team-based so it will involve more discussion about patients'.</i></p> <p>A11(P): <i>'So we work on the proportions of teaching making the larger proportion for small group teaching involving case based or PBL approaches and a smaller proportion of that by lecturing'.</i></p> <p>A14(P): <i>'...Students will have more cases which they will resolve in groups'.</i></p> <p>A19(P): <i>'...We start with quite large groups of 10 to 16 students in a group in first year, but by the time we reach fourth year we're working with groups of no more than four students... So we use the philosophy of starting with larger groups and moving on to smaller one...'.</i></p>
<p>Generally, academics act as facilitators rather than lecturers or spoon feeders</p>	<p>A4(S): <i>'we're mentors; we're parents, general problem solvers'.</i></p> <p>A5(P): <i>'...Our role is very much to facilitate that, we help them to learn, give them feedback, we discuss, we use examples and they produce things like care plans...'.</i></p> <p>A8(S): <i>'...they get two facilitative sessions with their academic advisor as small group discussions, and it's up to them to work out where and when to meet... manage to get the work done within the deadline assigned'.</i></p> <p>A10(P): <i>'We're definitely not spoon feeders, we always answer their questions... but definitely not spoon feeders, and they might hate us for that but it works. So we yes we do try to facilitate learning'.</i></p>
<p>As part of learning, students work on filling portfolios</p>	<p>A1(S): <i>'... from the portfolios that the students write we can see that they pick up on some stuff, mistakes done and say we don't want to be like that'.</i></p> <p>A2(P): <i>'...they are also looking for critical incidences or exciting incidences which they will reflect on. So they don't come back and tell us what they did, but they come back and reflect on their experiences'.</i></p> <p>A10(P): <i>'they write portfolios right from the first year up'til the fourth year, comprehensive portfolios that cover everything... relate that to certain key skills we want them develop as self management, problem solving, leadership, negotiation and that kind of thing... show their professionalism because to be a good pharmacist you draw on all your life experiences... focus on what their strengths and weaknesses are... we ask them to comply with the CPD requirements of the RPSB so they actually mimic the CPD cycle there'.</i></p> <p>A14(P): <i>'... its only 1st year at the moment but it's something we want to continue as we go on through the course...'.</i></p>

	<p>A16(P): <i>'...the university has a very strong personal development programme which is compulsory for all students at the university. So we've actually taken a portfolio approach from first year where students write reflective diaries that go into their portfolios. This is becoming very important from a career point of view, not just for exam results but it's becoming actually a demonstration of what they've done'.</i></p>
<p>As part of learning, students work on making presentations, vivas and role plays</p>	<p>A2(P): <i>'...that's a 6 month research project after which students may do a viva'.</i></p> <p>A3(S): <i>'We also have presentations and part of that is to get the students to try to think about how they would communicate with their particular project. So we are looking at developing communication skills'.</i></p> <p>A10(P): <i>'...we do this viva with them where we'll have 4 people in the room and we just fire questions at them to see if they actually understood what they are doing...'</i></p> <p>A17(S): <i>'They do numerous presentations and a lot of their work is in groups particularly towards the final years'.</i></p> <p>A19(P): <i>'They do group presentation in 1st year and this goes on till 2nd, 3rd and 4th year, and in every topic related to science, practice or pharmacology they do posters and oral presentations sometimes in groups and sometimes on their own to develop their oral communication skills'.</i></p>
<p>As part of learning, students work on preparing posters</p>	<p>A1(S): <i>'they have a module each year where they have to present a poster and work in groups'.</i></p> <p>A2(P): <i>'they do a poster and a presentation and these are repeated throughout the course'.</i></p> <p>A3(S): <i>'We also have poster sessions where students have to think about how to transfer what information they have to a small document'.</i></p> <p>A3(S): <i>'In the poster sessions at the end of the project we try to make those into like a mini-type conference so that all the students put their posters up and we invite the staff along internally'.</i></p> <p>A19(P): <i>'...in every topic related to science, practice or pharmacology they do posters and oral presentations sometimes in groups and sometimes on their own to develop their oral communication skills'.</i></p>
<p>As part of learning, students work on producing reports and essays</p>	<p>A2(P): <i>'that's a six-month research project after which students submit their reports and may do a viva'.</i></p> <p>A3(S): <i>'Students have to do an initial survey of literature which shows how they can focus on exactly what the aims and objectives of their projects are'.</i></p> <p>A7(S): <i>'Yes, they do science projects... They have to submit a report and may have to do a presentation'.</i></p>

	<p>A8(S): <i>'...they also have an individual report to write and that follows a very structured marking scheme'.</i></p> <p>A18(P): <i>'...they are given feedback which is largely on their method of presentation and what their piece of work has shown about their ability to research the sources and identify the key aspects...'</i></p>
<p>As part of learning, students work on preparing medicines reviews and pharmaceutical care plans</p>	<p>A16(P): <i>'... we've got an actor and do sort of a role play and have to do the counselling with the actor being the patient and they do a medicine's review and things like that... pharmaceutical care plans and prescribing and things like that...'</i></p> <p>A16(P): <i>'... they also are presented with a case study and from that they have to do a medicines review form and that's part of their exam as well....'</i></p>
<p>As part of learning, students are encouraged to take part in seminars and conferences</p>	<p>A3(S): <i>'In the poster sessions at the end of the project we try to make those into like a mini-type conference so that all the students put their posters up and we invite the staff along internally. So we also encourage students to come to our research seminars but the difficulties there is that we're such a small school that we can't, when we offer them research often it's on a very specific subject area so it may not be of interest'.</i></p> <p>A4(S): <i>'we have school research seminars and we encourage them to attend but I don't think they do'.</i></p> <p>A6(P): <i>'the module tutor is keen to see us develop our own school research conference... where our students can participate in presenting their own research, so the fourth years will present their research and the other years will come and listen, but that doesn't happen at the moment'.</i></p> <p>A8(S): <i>'...we also have a research seminar programme that all undergrads are invited to but it's not compulsory so the majority of them don't come, they are encouraged to attend and they could meet scientists from industry in such forums'.</i></p> <p>A20(S): <i>'We encourage participation in the RPSB events and activities... we encourage the final year students to attend the APS events'.</i></p>

SUB-THEME 2.3:**To what extent are PBL and other modes of innovative learning supported at pharmacy schools?****SUB-SUB-THEME 2.3.1:****Does teaching at pharmacy schools follow a more didactic or a more innovative approach in general?**

Code	Data extract
Teaching in pharmacy schools is a mixture of innovative and didactic teaching	<p>A1(S): <i>'I think it's a bit of both, and it depends on the subject and the tutor; some prefer in their lectures just to give a lot of facts and then answers'.</i></p> <p>A2(P): <i>'...we aim at a 50/50 split over things where you just sit and listen and things where you participate'.</i></p> <p>A5(P): <i>'It varies. I guess a lot of what we do is still didactic'.</i></p> <p>A6(P): <i>'Predominantly didactic for the undergraduates, there are some pockets for more interactive approaches but predominantly it's didactic'.</i></p> <p>A11(P): <i>'we work on the proportions of teaching making the larger proportion for small group teaching involving case based or PBL approaches and a smaller proportion of that by lecturing'.</i></p> <p>A17(S): <i>'I think it's more of traditional teaching... the lecturer is at the front... and the students are supposed to sit there and listen'.</i></p> <p>A20(S): <i>'Traditionally there's been more of the didactic lecturing and it's something we're gradually moving away from'.</i></p>
Innovative learning activities are applied more as students progress in their studies	<p>A2(P): <i>'...that is obviously more important in the higher years where the learning outcomes are about critical evaluation and setting priorities. The 1st year outcomes are about describe, the 2nd year outcomes are about discuss and describe, so the 3rd and 4th year outcomes would lend themselves more to how they can construct an argument'.</i></p> <p>A6(P): <i>'the model that we use in our PBL is that we deliver knowledge through an introductory lecture, and then each introductory lecture is followed up by a PBL tutorial'.</i></p> <p>A15(S): <i>'We start interdisciplinary education around second or third year. In the first year the focus is more on foundational knowledge'.</i></p> <p>A17(S): <i>'...really they don't encourage doing those type of problem solving exercises at first, second year, whereas in pharmaceuticals in the third year, we start giving them problems, case studies, and then fourth year it should all be problem solving'.</i></p> <p>A20(S): <i>'...the way we implement these is largely in the second year to the third year in the modules where we have integrated modules set around therapeutic themes'.</i></p>

SUB-SUB-THEME 2.3.2:

Do pharmacy schools encourage academics to apply PBL and other forms of innovative learning?

Code	Data extract
Pharmacy schools encourage academics to move away from didactic toward more interactive and innovative learning (updating programmes, training academics...)	<p>A2(P): <i>'...When we were designing the course and how things will sequence over four years, the emphasis was to integrate problem solving skills and professional identity skills and the professional components of every module from the beginning'.</i></p> <p>A5(P): <i>'In the new MPharm course we'll be looking to increase the proportion of PBL, the level of didactic teaching will hopefully decrease, but it will never disappear'.</i></p> <p>A8(S): <i>'...we haven't got enough small group teaching as much as we wish to have really just because of the large numbers, but again it's something we're trying to address in the new MPharm course'.</i></p> <p>A11(P): <i>'we are very keen to embed new learning opportunities in our teaching and that affects a reasonably large amount of the teaching methods to be in a constructivist way as opposed to traditional teaching methods'.</i></p> <p>A20(S): <i>'We've been undergoing a long going process of reducing the amount of face-to-face directed teaching and increasing the quality of the work and the space kind of activities you're talking about by moving away from the more formulaic teaching in the second, third and fourth year...'.</i></p>
Pharmacy schools encourage academics to attend conferences to improve their learning techniques and are increasingly encouraging them to obtain PG certificates in learning	<p>A10(P): <i>'I've recently been to a conference in Copenhagen about teaching pharmacology...'.</i></p> <p>A17(S): <i>'We do have a very pro-active teaching training and organisation within the university who are trying to encourage the lecturers to make it more interactive'.</i></p> <p>A20(S): <i>'Lecturers go for a post graduate certificate in learning... the philosophy there is to make lectures more interactive and move beyond the traditional didactic lectures'.</i></p>
there is no enforcement to apply innovative learning activities by schools; it is totally a personal effort by academics	<p>Academic 1: <i>'No I think it's more of a personal effort by the tutor; we try to do what is best for our course. The school sends us on teaching courses where you get ideas but there is no enforcement to apply it, it's more of a trial an error where you apply it and next year you build on it and improve it and make it better each year'.</i></p> <p>A2(P): <i>'I would say it strongly depends on the tutor, it is strongly tutor lead, but we've designed the course from the beginning as a whole and took into consideration how the students will develop'.</i></p>

<p>interested in applying them</p>	<p>A5(P): <i>'So we're trying to do that but that's only in a small number of classes where we have interaction like that... I don't think we have a whole co-ordinated approach yet, but within our new teaching we're developing a new structure as well'.</i></p> <p>A6(P): <i>'It's a personal effort by the module leader... it's largely down to the individual members of staff and how passionate they are about using alternative learning methods'.</i></p> <p>A8(S): <i>'It's a personal effort but it would be much more worthy by getting the academic advisors to help and complement the lessons and fortunately they do'.</i></p>
<p>There is a lot of enthusiasm among pharmacy academics to make learning more interactive with students and focus on the development of their skills</p>	<p>A1(S): <i>'...instead of teaching them or telling them the basic concepts or basic processes, I actually get them to think about the applicability because I hate just telling them how I do it'.</i></p> <p>A2(P): <i>'...they are also looking for critical incidences or exciting incidences which they will reflect on. So they don't come back and tell us what they did, but they come back and reflect on their experiences'.</i></p> <p>A4(S): <i>'I stress on their ability to go and find information by themselves from papers and background reading, not just for developing the skills of self learning but also to develop their ownership of the subject and making it interesting'.</i></p> <p>A5(P): <i>'Some members of staff have introduced new ways of doing things, so they're more interactive, they could use devices for learning so that there is interaction and ask questions so the students can respond in the lecture, so there's some interaction there...'.</i></p> <p>A13(P): <i>'...the learning exercises we use are all related to problems, so we provide them with a scenario, problem, puzzle and tell them to identify what the issues are and think it through, discuss it with their peers, look things up... questioning and requiring students to participate and not just sit and soak up'.</i></p>

SUB-THEME 2.4:

Issues influencing the implementation of innovative learning activities at pharmacy schools

Code	Data extract
<p>Going for didactic or innovative learning techniques is influenced by the academic's personality</p>	<p>A5(P): <i>'...Some members of staff have introduced new ways of doing things, so they're more interactive, they could use devices for learning so that there is interaction and ask questions so the students can respond in the lecture, so there's some interaction there'.</i></p> <p>A8(S): <i>'...it's never something to save time, it would be definitely less work for me to lecture, so some might be a bit more lazy to take this approach'.</i></p>

	<p>A14(P): <i>'Well I think it's a mixture. Depending on the academics themselves, some academics still teach in a didactic way, in the traditional way which they have always used, perhaps the same way they were taught 20 – 30 years ago, while others try to bring in more progressive and innovative methods trying to engage students...'</i></p> <p>A14(P): <i>'yes they are encouraged to use different learning styles but it would still depend on the lecturers themselves and how they decide to engage the students'.</i></p> <p>A20(S): <i>'... we're largely subject dependent and lecturer dependent'.</i></p>
<p>Going for didactic or innovative learning techniques is influenced by the number of students</p>	<p>A6(P): <i>'Number does play a role here. We have about 180 students a year in a class room. We are able to break them down to smaller groups in some courses and that's where we're able to introduce some interaction'.</i></p> <p>A8(S): <i>'The number of students plays a role here, I think we take about 180 students – in some years 190 – in a lecture... but we have only 37 academic advisors...'</i></p> <p>A8(S): <i>'...we haven't got enough small group teaching as much as we wish to have really just because of the large numbers... it's something we're trying to address... We do appreciate the value of small group work, it's just having the resources to do that'.</i></p> <p>A17(S): <i>'The problem is that we have upwards of 100 students in our first year and second year, which makes it incredibly difficult to make lectures interactive... It's such a large number; I think the numbers alone sometimes prevent you from doing a fully interactive session'</i></p> <p>A17(S): <i>'So maybe smaller schools like Huddersfield can have the advantage of teaching simply because they are quite small, and you could probably do the problem based learning more effectively in small groups'.</i></p>
<p>Going for didactic or innovative learning techniques is influenced by aspects related to the modules themselves</p>	<p>A1(S): <i>'...it depends on the subject and the tutor...'</i></p> <p>A2(P): <i>'you can't take the whole curriculum and provide it through PBL or a professional approach, there is a large amount of pharmacy that has to be taught; you can't take the whole curriculum and provide it through PBL or a professional approach. Some parts of the curriculum lend themselves very well to PBL and others have to be taught'.</i></p> <p>A20(S): <i>'... we're largely subject dependent and lecturer dependent'.</i></p> <p>A2(P)RI: <i>'Our accreditation requirements are very strict that there is not much room to do anything else beside what is required really'.</i></p> <p>A5P(RI): <i>'...pharmacy schools are under a lot of pressure to deliver too much in the programme'.</i></p>

<p>Going for didactic or innovative learning techniques is influenced by the lack of sufficient funding</p>	<p>A5(P): <i>'we are not funded to have small group teaching... so we have to kind of go into the blended approach of where we select different methods but I'd like to see more PBL embedded within the modules... get it throughout the years'</i>.</p> <p>A8(S): <i>'We do appreciate the value of small group work, it's just having the resources to do that'</i>.</p> <p>A9(P): <i>'we have to be careful about the costs of running these activities, as much as we want to apply all these innovative approaches we have a budget...'</i>.</p> <p>A10(P): <i>'we don't have the resources to do proper PBL because for that you need one facilitator for each group of 10 students, they have to meet twice a week and it's not possible resource wise'</i>.</p> <p>A1(S)RI: <i>'...the funding and student numbers play a role here'</i>.</p>
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Appendix 5

A detailed listing of the codes and data extracts included under:

THEME THREE: Utilising PBL for education into enterprise at pharmacy schools in the UK

(Analysed in Chapter 7)

1) Codes under Theme Three:

THEME THREE: Utilising PBL for education into enterprise at pharmacy schools in the UK	
Sub-themes and sub-sub-themes	Codes
<u>Sub-Theme 3.1:</u> Do pharmacy academics realise the value of learning activities embedded within curricula in the development of students' enterprise skills?	<ul style="list-style-type: none"> <i>Weak understanding of the concept of enterprise education</i> <i>Pharmacy schools see the importance of interactive learning for development of skills</i> <i>There is more emphasis on developing the practice-related courses</i>
<u>Sub-Theme 3.2:</u> The importance of science in pharmacy education and a pharmacist's career	<ul style="list-style-type: none"> <i>Science is seen as very important</i> <i>Science, especially pharmaceuticals, is essential for the uniqueness of pharmacists</i>
<u>Sub-Theme 3.3:</u> Reasons and issues behind the weak linking between science-related and practice-related courses	<ul style="list-style-type: none"> <i>Approaches followed in updating pharmacy curricula</i> <i>Practice-related courses lend themselves more easily for innovative learning activities</i> <i>More emphasis on hiring teacher-practitioners from practice</i> <i>Most graduates end up working in practice-related jobs</i> <i>Graduates are not well-prepared for jobs in industry</i>
<u>Sub-Theme 3.4:</u> How Can PBL Learning Activities be Utilised to overcome the Weak Linking between Science and Practice-related Courses, and Accordingly Lead to Better Development of Students' Enterprise Skills in Scientific	<ul style="list-style-type: none"> <i>The need to integrate science into practice</i> <i>It is easier to utilise learning activities in practice courses to integrate science into them</i>

Contexts? What are Pharmacy Schools Doing in this Regard?	
<u>Sub-Sub-theme 3.4.1:</u> How are pharmacy schools working toward achieving integration between the science and practice courses?	<ul style="list-style-type: none"> • <i>Some schools integrate their courses as a whole</i> • <i>Some schools teach courses on a modular basis</i>
<u>Sub-Theme 3.5:</u> Do the PBL learning activities applied at pharmacy schools aim to develop students' enterprise skills formally? A look into assessment methods and learning outcomes	<ul style="list-style-type: none"> • <i>Enterprise skills are increasingly becoming formally developed</i> • <i>There are some gaps in the assessment methods</i> • <i>Various skills are considered in assessments</i> • <i>Assessment standards increase as students progress</i> • <i>Growing interest in applying peer assessments</i>

2) Data extracts related to each code under Theme Three:

SUB-THEME 3.1:

Do pharmacy academics realise the value of learning activities embedded within curricula in the development of students' enterprise skills?

Code	Data extract
Weak understanding of the concept of enterprise education among pharmacy academics	<p>A8(S): <i>'We don't use the term enterprise but we think of EBL as a way of developing lots of generic skills which are absolutely essential for students in their workplace... but we don't actually call it enterprise'.</i></p> <p>A9(P): <i>'No, not at all. Usually we relate it to business and entrepreneurship'.</i></p> <p>A14(P): <i>'Probably not, probably if you haven't explained what you meant by it at the beginning I would have gone down the business route, more toward innovation and entrepreneurial skills'.</i></p> <p>A16(P): <i>'I probably wouldn't use the word enterprise... enterprise to me means business and management, and we don't teach management here whatsoever, but we do pharmacy practice skills for the skills they would actually need in practice'.</i></p> <p>A17(S): <i>'I've never heard of enterprise education but I could hazard a guess, but I suspect I'd be wrong, is it business awareness?'.</i></p> <p>A18(P): <i>'It's not familiar... it's more linked with business than other areas'.</i></p>

<p>Pharmacy schools see the importance of interactive learning and engagement in real-life situations for the development of students' skills</p>	<p>A2(P): <i>'...When we were designing the course and how things will sequence over four years, the emphasis was to integrate problem solving skills and professional identity skills and the professional components of every module from the beginning'.</i></p> <p>A8(S): <i>'...we think of enquiry based learning as a way of developing lots of generic skills which are absolutely essential for students in their workplace as the communication skills, team skills, oral presentations they have to do and the report writing and also database searching skills...'</i></p> <p>A8(S): <i>'... we talk about all the skills needed and the aims and objectives and we talk about professionalism and get their team working skills sorted out in a two hour workshop...'</i></p> <p>A10(P): <i>'...we have attached the portfolios to professional activity credits... because you can't actually demerit behaviour. So if someone is being professional they can get credits for it. Students are also credited for participation in university activities, any contribution toward the community, any voluntary work or work that they do because it all contributes to their professionalism...'</i></p> <p>A14(P): <i>'...Students will have more cases which they will resolve in groups, which is probably aligned with PBL though it's not PBL in its traditional format. I guess by that we encourage them to be better learners, take part in workshops, work in groups...'</i></p> <p>A16(P): <i>'...so students will not be given all information in these tutorials but have to look it up to answer a set of questions. This should encourage their self-learning, responsibility and organisation skills, as well as their academic skills in doing research and using online resources, because otherwise students will rely too much on the information we give them and won't do the directed private study which means they won't get used to using the resources which they will have to use if they want to be good pharmacists'.</i></p>
<p>Academics mentioned that there is generally more emphasis on developing the practice-related courses than the science-related ones</p>	<p>A6(P): <i>'The focus so far is predominantly on practice... So at the moment I think the skills delivered are being delivered out of context and the students can't see how they are relevant to being a pharmacist'.</i></p> <p>A7(S): <i>'in science we're much more concerned that they have the basic rounding skills and knowledge that they can apply. We're not really concerned about their confidence and communication'.</i></p> <p>A8(S): <i>'I think students try to compartmentalise their science knowledge. They think it's the practice knowledge that they need to carry on with, not the science, and I think we have to make sure that they understand the need for integrating both, it's a whole package'.</i></p> <p>A11(P): <i>'...it is fair to say that the science content itself is not a well-defined outcome measure in most MPharm programmes, and by the science outcome I mean chemistry, maybe a bit of biology...'</i></p> <p>A16(P): <i>'...I would say there is more focus on developing the skills in pharmacy practice than in science...'</i></p>

SUB-THEME 3.2:**The importance of science in pharmacy education and a pharmacist's career**

Code	Data extract
Academics consider science as very important and are full supporters of reassigning the science	<p>A1(S): <i>'...doctors will ask you questions and you have to have that scientific background! Not that you can pluck an answer from thin air...'</i></p> <p>A10(P): <i>'...so we're actually trying to put the science behind it because it is the key to what we do. We have to keep the science, to be a pharmacist you have to be a scientist. If nothing else the key transferable skills; to be a good scientist you have to be accurate, particular and objective'</i></p> <p>A13(P): <i>'in certain teams the pharmacist will fulfil a very different role than other teams depending on who you've got there, and I think they will always need their pharmaceutical skills and formulations and dispensing because I can't think of anybody else in the team who can fulfil that role... the pharmaceuticals is only owned by pharmacists but it doesn't come up that often'</i></p> <p>A15(S): <i>'I sometimes get surprised that we are reducing so much on sciences. We need science to a great extent and even to support the practice. Science is equally important'</i></p> <p>A17(S): <i>'...if you had pharmacists who were sure of what they were there for then that's how you solve the problem. Cos then when you speak to a GP who asks you well 'I've got a sustained release product here and I've got a modified release' and whatever, you're the person who they come to see about that. Whereas in all honesty if you're talking about diagnosing and treating diabetes, the GP knows best, cos he does it every day you know! He's been taught that'</i></p>
Academics see science, especially the science of pharmaceuticals, as essential for the uniqueness of pharmacists	<p>A4(S): <i>'...It's science at the end that gives pharmacists the monopoly of practice, and whether a pharmacist decides to work in industry, hospitals, or retail he will still need that strong scientific background... If we know the sciences of drug discovery and drug development then that is what we need to make us pharmacists'</i></p> <p>A5(P): <i>'...So we've spent a bit of time in trying to think what is it that pharmacy has that makes it different? Our thought was that what they don't have is the science. Yes, it is the science what makes pharmacists different from the healthcare professionals; they are the scientists. That is really the centre to the role'</i></p> <p>A10(P): <i>'...so we're actually trying to put the science behind it because it is the key to what we do. We have to keep the science, to be a pharmacist you have to be a scientist. If nothing else the key transferable skills; to be a good scientist you have to be accurate, particular and objective'</i></p> <p>A10(P): <i>'it's the pharmaceuticals course that nobody else studies, formulations and understanding formulations and how formulations relate to patients'</i></p>

	A13(P): <i>'in certain teams the pharmacist will fulfil a very different role than other teams depending on who you've got there, and I think they will always need their pharmaceutical skills and formulations and dispensing because I can't think of anybody else in the team who can fulfil that role... the pharmaceuticals is only owned by pharmacists but it doesn't come up that often'.</i>
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SUB-THEME 3.3:

Reasons and issues behind the weak linking between science-related and practice-related courses

Code	Data extract
Approaches followed in updating pharmacy curricula when the MPharm programme was first introduced in the year 2000	<p>A8(S): <i>'In our current degree I would say they are largely taught separately, but we are making a lot of efforts to integrate the science into the practice in the new MPharm course'.</i></p> <p>A11(P): <i>'...there have been some major changes in pharmacy education if you are talking about 5 or 10 years ago where the vast majority of a BSc practice context and content would likely be delivered post graduate pre-registration and the education relied heavily on the pre-registration experience to give the pharmacists the clinical skills that were in use in those days which weren't great, pharmacists lacked consultation skills and clinical skills and that was in the mid eighties'.</i></p> <p>A11(P): <i>'...some schools stuck one year something on top of their three year course of pharmaceutical science and others adopted a more integrated approach and were more practice-focused...'</i></p> <p>A11(P): <i>'...you need the science in order to build the practice on top. But I think in practice this just doesn't happen! What happens is, you get science and then you get practice, and they don't link. It's very difficult for students to see how the science applies to what they do'.</i></p> <p>A14(P): <i>'I think the science is still needed but it has to be science that is relevant to the practice... the science we teach has to be applied and relevant to practice and it's still not'.</i></p>
Practice-related courses lend themselves more easily for application of innovative learning approaches, while this is more difficult to achieve in the science-related courses	<p>A4(S): <i>'if you are leaving the hard facts of science up to PBL then you can't be sure they're getting everything that they need'.</i></p> <p>A7(S): <i>'in science we're much more concerned that they have the basic rounding skills and knowledge that they can apply. We're not really concerned about their confidence and communication'.</i></p> <p>A19(P): <i>'In practice yes, all academics apply innovative learning approaches. But I'm not so sure if it's applied as strongly in pharmacology and pharmaceuticals'.</i></p> <p>A19(P): <i>'We use PBL to integrate between pharmacology and pharmacy practice; I think it's less applied in pharmaceutical science'.</i></p>

	<p>A2(P)RI: '<i>... we succeed more in integrating the science courses in the practice ones rather than applying innovative approaches in pure science courses. I think we've done quite well in doing that in pharmaceuticals course where we integrated more case and problem based learning. It's harder to do that in pharmacology and chemistry courses...'</i>'.</p>
<p>More emphasis on hiring teacher-practitioners from practice than from industry</p>	<p>A6(P): '<i>all our teacher-practitioners are from practice; either community or hospitals... we don't have any formal links with industry teacher-practitioners but that may change... the school is trying to recruit people who have dual roles'</i>'.</p> <p>A10(P): '<i>All the clinical pharmacy courses are taught by practicing pharmacists'</i>'.</p> <p>A16(P): '<i>all the academics teaching clinical modules are practitioners but those teaching the science are only academics, they don't actually go beyond the academic field into the real-world'</i>'.</p> <p>A19(P): '<i>We have part time clinical pharmacists and teacher-practitioners, so we have a team of about 16 of teacher practitioners and clinical pharmacists from hospitals, they are on a day-to-day interaction with our students'</i>'.</p> <p>A19(P): '<i>We don't have teacher-practitioners from industry at the moment, we're very weak. I think it is partly geographical; there isn't much pharmaceutical industry in the area. Not really much being done at the moment'</i>'.</p>
<p>Most pharmacy graduates end up working in practice-related jobs, and the educational process does not focus on preparing graduates for jobs in industry or research</p>	<p>A7(S): '<i>we have 10% lovely students who are just outstanding and we can let them work in industry, and the vast majority goes for pharmacy degree because they want to be pharmacists in a shop. So they are not interested in what happens in industry'</i>'.</p> <p>A14(P): '<i>99% of our students will end up in retail and hospitals and the remaining 1% would go to different areas including research, industry or others. Industry is no longer available on the pharmacy students' radar anymore, because 20 years ago when there were a lot more industry placements available, a lot more pharmaceutical companies available...'</i>'.</p> <p>A17(S): '<i>I would say that students are more ready to interact in practice courses simply because I think they see more relevance to the pharmacy practice parts of the course, and so sometimes get more enthusiastic about actually getting involved... unfortunately if you get them in the lab... they're less likely to be asking questions about it... simply because they can't ever see themselves doing that'</i>'.</p> <p>A5(P)RI: '<i>But maybe people will gravitate to the part of the programme that is more interesting and maybe the dispensing is a more technical part that they enjoy less, perhaps we should make it more interesting'</i>'.</p>

<p>Pharmacy graduates are not well-prepared for jobs in industry. Pharmacy education does not make science teaching interesting or motivate students to consider jobs in industry and scientific streams</p>	<p>A7(S): <i>'I mean that's not my role to prepare them for a job. That's the role of the pharmacy practice people'.</i></p> <p>Academic 7: <i>'We employ a whole section of pharmacy practice people; their job is to prepare people to be pharmacists. That's not my role at all. My role is to stimulate their creativity and their inquiry and that sort of thing'.</i></p> <p>A7(S): <i>'No, we don't prepare our graduates for a job in industry, so they don't have the skills for it... we are aware of the fact that the minority in our new course will be ill-served unless we do something about it...'</i></p> <p>A8(S): <i>'I think our students feel they are more equipped for a career in hospitals rather than retail because most of the clinical experience is gained in a hospital environment. As for industry I think we get only one or two students who are determined to go for that and we help those with contacts but we don't prepare the whole cohort'.</i></p> <p>A14(P): <i>'...developed the skills needed for industry which are different from those needed in retail or hospitals...'</i></p> <p>A5(P)RI: <i>'But maybe people will gravitate to the part of the programme that is more interesting and maybe the dispensing is a more technical part that they enjoy less, perhaps we should make it more interesting'.</i></p>
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SUB-THEME 3.4:

How Can PBL Learning Activities be Utilised to overcome the Weak Linking between Science and Practice-related Courses, and Accordingly Lead to Better Development of Students' Enterprise Skills in Scientific Contexts? What are Pharmacy Schools Doing in this Regard?

Code	Data extract
<p>The need to integrate science into practice in pharmacy education which is seen as a way to develop students' skills, and a growing interest in achieving that</p>	<p>A5(P): <i>'In the new MPharm course we're certainly trying to do a lot more integration between science and practice'.</i></p> <p>A5(P): <i>'With the new curriculum, what we want to do is to have it much more widespread so what we've done is we've created bigger modules... and we have a team for each module including at least one pharmacist and one scientist'.</i></p> <p>A6(P): <i>'The focus so far is predominantly on practice and that is something we will change when we introduce our new MPharm course in 2012... all the science modules will have a pharmacist on them to try to relate the science into the practice and instil in the students how the skills they learn are actually relevant to pharmacy practice'.</i></p> <p>A8(S): <i>'I think students try to compartmentalise their science knowledge. They think it's the practice knowledge that they need to carry on with, not the science. And I think we have to make sure that they understand the need for integrating both, it's a whole package'.</i></p>

	<p>A8(S): <i>'In our current degree I would say they are largely taught separately, but we are making a lot of efforts to integrate the science into the practice in the new MPharm course...'</i></p> <p>A8(S): <i>'...we are designing a new MPharm course and we are very keen to get the science integrated into the practice , so we are doing our best but we're probably not there yet'</i></p> <p>A10(P): <i>'...they have this written piece of work and then we do this viva with them where we'll have 4 people in the room and we just fire questions at them to see if they actually understood what they are doing, we'll have two academics one from science and one from practice so that we can get to cover both aspects; so that is proper interdisciplinary stuff'</i></p> <p>A14(P): <i>'I think the science is still needed but it has to be science that is relevant to the practice... the science we teach has to be applied and relevant to practice and it's still not'</i></p>
Instead of embedding learning activities into science-related courses, it is easier to utilise learning activities embedded in the practice-related courses to integrate science into them	<p>A8(S): <i>...we have some introductory workshops where clinical tutors come in and discuss with students the relevance of drug stability... and how their pharmaceutical knowledge and chemistry knowledge would have application in a hospital environment... and we also discuss team work aspects, and we get clinical staff involved in this with the science staff to bridge the link'</i></p> <p>A11(P): <i>'Now we are vigorously strongly toward focusing on patient care but our graduates will be competent in all underpinning science and biological sciences as any other graduate in the country and should be able to enter a career in pharmaceutical science or research as any other graduate in the country, but the context is always on patient care'</i></p> <p>A2(P)RI: <i>'... we succeed more in integrating the science courses in the practice ones rather than applying innovative approaches in pure science courses. I think we've done quite well in doing that in pharmaceuticals course where we integrated more case and problem based learning. It's harder to do that in pharmacology and chemistry courses...'</i></p>

SUB-SUB-THEME 3.4.1:

How are pharmacy schools working toward achieving integration between the science and practice courses?

Code	Data extract
Some schools integrate their courses as a whole	<p>A5(P): <i>'With the new curriculum, what we want to do is to have it much more widespread so what we've done is we've created bigger modules... and we have a team for each module including at least one pharmacist and one scientist'</i></p> <p>A9(P): <i>'I know from the way the courses are made up I know that the science and practice are clustered together, and they know what the science means in terms of practice, the university here definitely aims to integrate both'</i></p>

	<p>A10(P): <i>'The emphasis here is contextualisation of everything we teach, so we're moving away from teaching things in little modular boxes... and in those we have themes that link throughout the year'.</i></p> <p>A11(P): <i>'...the way we do our course is a four 120 credit modules, so we don't have a module of chemistry or pharmacology or law or a module of anything; our students are taught in a thorough integrated manner... they will learn about that in the context of health conditions, they will learn about that in the context of judgement and theory all related to the patient... so they are taught in that linear narrative fashion and when you look at the whole thing you can see how the pharmacology underpins the therapeutic knowledge... as students progress they get more pieces of the jigsaw and the picture becomes clearer and they get to see what this is and what this is and how they relate and fit in'.</i></p> <p>A20(S): <i>'... We apply an integrated approach in modules, in this modular structure we don't teach the science, pharmaceuticals, chemistry and pharmacology, pharmacy practice separately; we have elements of each that are relevant to a particular therapeutic area or body system, and gather it together in particular modules'.</i></p>
<p>Some schools teach course on a modular basis but still try to integrate between courses.</p>	<p>A1(S): <i>'...I try to bring in a bit of pharmacology and chemistry into the pharmaceuticals course...I want them to think more about other issues as well related to the product and to numeracy. So students would have to know everything from what's going into a drug, how it's working, what it's used for, how you would tell the patient to use it and then how you will make it... We're teaching them science for the sake of what pharmacists need to know and not for the sake of science'.</i></p> <p>A2(P): <i>'One thing the pharmaceutical society has commended us on for the last two years when they met our students is that integration, and the fact that the students understand this integration and why we do these links. So one thing we have succeeded on is getting students to think vertically and horizontally'.</i></p> <p>A3(S): <i>'it's very difficult within a modular based course... What we try to do is perhaps within projects and within extended practicals, is to try and bring some integration for the writing up of reports that requires students to know their first year, second year, work or to draw it into their final year'.</i></p> <p>A5(P): <i>'...we started on other modules having the member of pharmacy practice going to science modules and teaching'.</i></p> <p>A6(P): <i>'... all the science modules will have a pharmacist on them to try to relate the science into the practice and instil in the students how the skills they learn are actually relevant to pharmacy practice'.</i></p> <p>A19(P): <i>'We use PBL to integrate between pharmacology and pharmacy practice; I think it's less applied in pharmaceutical science'.</i></p>

<p>Applying inter-professional education takes place at some schools</p>	<p>A1(S): <i>'...we try to do that through the inter-professional learning where they interact with other professions'.</i></p> <p>A2(P): <i>'We have inter-professional... we do inter-professional here in the school and we do inter-professional outside the school'.</i></p> <p>A4(S): <i>'we do something called INTERACT, which is a web-based forum where they are given a case study and have to discuss that with the nursing students, pharmacy tech. students and physiotherapy students, they get that in the first year...'</i></p> <p>A6(P): <i>'...we've run a module with midwifery... where students learn about health promotion with each other and dentistry is involved with that this year, and that's on line... we have a fourth year module on medical safety that we've run last year with medical students and pharmacy students, and this year nursing is involved as well'.</i></p> <p>A11(P): <i>'...we use PBL in small context for inter-professional education because its neatly discrete for the rest of the course so it's manageable'.</i></p> <p>A19(P): <i>'We embed PBL and CBL with inter-professional learning, so we'll have IPL groups with nursing students, dentistry and medicine'.</i></p>
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SUB-THEME 3.5:

Do the PBL learning activities applied at pharmacy schools aim to develop students' enterprise skills formally? A look into assessment methods and learning outcomes.

Code	Data extract
<p>Enterprise skills are increasingly becoming formally included in pharmacy curricula especially that RPSB is focusing on them</p>	<p>A3(S): <i>'We do have methods of assessment which try to encourage those transferable skills'.</i></p> <p>A5(P): <i>'I think it's all changing with the new standards for pharmacy education and it will definitely be much more around skills and competencies, and to be able to show they have the confidence to do something... We have always intended to do that and with the accreditation we have to do that anyway'.</i></p> <p>A7(S): <i>'Yes, well I mean we like to see whether the skills can be applied, whether they can apply their knowledge in particular'.</i></p> <p>A9(P): <i>'all the courses have learning outcomes and details about what they're expected to do and knowledge and skills outcomes as well as applying in practice'.</i></p> <p>A16(P): <i>'In the second year they've actually got to apply their knowledge... case study and from that they have to do a medicines review form and that's part of their exam as well... they have OSCEs (Objectives, Structures, Clinical Examinations) where we've got an actor and do sort of a role play and have to do the counselling with the actor being the patient and they do a medicine's review and things like that... pharmaceutical care plans and prescribing and things like that... So we apply different assessment methods and we do actually get them to apply their knowledge it's not just regurgitation'.</i></p>

	A16(P): <i>'...So we apply different assessment methods and we do actually get them to apply their knowledge it's not just regurgitation'.</i>
There are some gaps in the assessment methods; they are knowledge focused sometimes and/or applied more in practice-related courses	<p>A6(P): <i>'The way we assess is often knowledge driven. We do assess problem solving to some extent, but the kind of skills you mentioned we don't assess across the modules. In things like PBL portfolios, we do assess the reflective writing but that's only a small module across the whole MPharm, so again we do have some examples of good assessment in the programme, but as a whole the assessment we do focuses mainly on knowledge and a small amount of the application of knowledge'.</i></p> <p>A6(P): <i>'Learning exercises mainly focus on acquisition of knowledge'.</i></p> <p>A6(P): <i>'The focus so far is predominantly on practice... So at the moment I think the skills delivered are being delivered out of context and the students can't see how they are relevant to being a pharmacist'.</i></p> <p>A6(P): <i>'We have a small number of essay exams and there the students will get credit for structuring an answer in a logical way, but most of the other exams you are literally looking through the answers for the right words'.</i></p> <p>A5(P)RI: <i>'We've written our new MPharm course to meet the new requirements of the indicative syllabus proposed by the society and we've included the development of those skills in all the modules, but certainly a lot of them are patient focused and therefore can only be developed and assessed in a clinical context only'.</i></p>
Academics consider various skills development in their assessment of students	<p>A3(S): <i>'We do have methods of assessment which try to encourage those transferable skills... students have to do an initial survey of literature which shows how they can focus on exactly what the aims and objectives of their projects are, and to be able to use electronic databases...'.</i></p> <p>A4(S): <i>'I like to include in my marking scheme how well they have done in their literature search. And it's not just about having a right or wrong answer, I like to give them credit for taking initiative or coming out with a hypothesis or a discussion point that nobody else came up with, also when they find references that nobody else found... so they take credit for initiative and original thinking because it's a reflection of how they take pride of their work and that they've actually taken the effort to give me something other than a regurgitated lecture'.</i></p> <p>Academic 6: <i>'We have a small number of essay exams and there the students will get credit for structuring an answer in a logical way, but most of the other exams you are literally looking through the answers for the right words'.</i></p> <p>A8(S): <i>'...in the EBL assessment we assess how well they've written the report, and credit for how they communicated as a team'.</i></p>

	<p>A11(P): <i>'Team skills and working with others are both implicit and explicit in the course and you won't get through the course if you don't do it... Numeracy and computer literacy, you couldn't possibly go through pharmacy without that. Time management is embedded implicitly, because if you don't have time management you can't get through the course'.</i></p>
<p>Assessment standards increase as students progress in their studies</p>	<p>A2(P): <i>'...in the 1st year they can fail or miss out on a major prescription but provided everything is all right they pass, but by the time they get to their second year they can't pass if they make a major error, so this assessment is very stressful for them because the standards are so high'.</i></p> <p>A3(S): <i>'...So where we might expect a foundation level descriptor to say 'to gain knowledge of, or to be introduced to' what we would have is descriptors for the honours is to 'extend, to creatively', and what we expect by the time we get to 'H' level is the independence gained from being brought in experience... It's supposed to be this hierarchy'.</i></p> <p>A4(S): <i>'critical assessment of skills is obviously more important in the higher years where the learning outcomes are about critical evaluation and setting priorities'.</i></p>
<p>Growing interest in applying peer assessments</p>	<p>A2(P): <i>'We do peer assessments on patient counselling skills and consultation skills'.</i></p> <p>A6(P): <i>'it's funny in peer assessments, some students just like to praise and give a lot of compliments and others are very critical'.</i></p> <p>A8(S): <i>'...the peer assessment is done anonymously and has 10% of the credit attached to it, and I think in the long run it shouldn't be anonymous, you should be able to give constructive feedback face-to-face'.</i></p> <p>A10(P): <i>'...students have to justify their peer assessment and toward the end we find that students do really get quite objective in their assessments'.</i></p> <p>A18(P): <i>'...one of our academics is introducing a peer assessment where if the student's mark is within a certain range of the academic's mark the student will get extra marks... to encourage people to be very thoughtful and objective about how they assess people...'.</i></p>

Appendix 6

A detailed listing of the codes and data extracts included under:

THEME FOUR: Academics explanations/ justifications for the low level of graduate enterprise skills in the pharmacy context

(Analysed in Chapter 8)

1) Codes under Theme Four:

THEME FOUR: Academics explanations/ justifications for the low level of graduate enterprise skills in the pharmacy context	
Sub-themes and sub-sub-themes	Codes
<u>Sub-Theme 4.1:</u> The educational process aims to equip pharmacists with general skills required by recent graduates	<ul style="list-style-type: none"> <i>The educational process aims to equip pharmacists with general skills and not job-specific skills</i>
<u>Sub-Theme 4.2:</u> The way pharmacists develop their skills and demonstrate them varies in different contexts	<ul style="list-style-type: none"> <i>Developing and demonstrating skills is context-specific</i> <i>Some skills can be developed completely in an educational context</i>
<u>Sub-Theme 4.3:</u> lack of sufficient joint efforts between pharmacy schools and real-world organisations	<ul style="list-style-type: none"> <i>Pharmacy curricula need to be improved to include more student exposure to real-life situations</i> <i>Real-world organisations demand financial compensations to train students</i> <i>The educational process lack sufficient communication with doctors from real-life</i>
<u>Sub-Theme 4.4:</u> The pre-registration year and the four-year educational process at HEIs do not link together	<ul style="list-style-type: none"> <i>The pre-registration year and the pharmacy education at HE have different objectives</i>
<u>Sub-Theme 4.5:</u> The role reflected by retail pharmacist is different from the professional role taught by the educational process	<ul style="list-style-type: none"> <i>The image reflected by retail pharmacists is not a professional one</i> <i>The importance of talking to patients. They want pharmacists who care</i> <i>Retail pharmacists do not establish sufficient communication with doctors</i>

Sub-Theme 4.6: The uncontrolled growing influence of multiples (chain pharmacies) that is turning the profession to become primarily business-oriented	<ul style="list-style-type: none"> • <i>Multiples are turning the profession into a business</i>
Sub-Theme 4.7: Lack of sufficient government support to control the job description of pharmacists	<ul style="list-style-type: none"> • <i>The government does not support the professional role of pharmacists</i>

2) Data extracts related to each code under Theme Four:

SUB-THEME 4.1:

The educational process aims to equip pharmacists with general skills required by recent graduates, and accordingly graduate day-one pharmacists and not chief pharmacists

Code	Data extract
The educational process aims to equip pharmacists with general skills and not job-specific skills	<p>A1(S): <i>'The whole point in pharmacy is not going out with a whole lot of knowledge; it's also having the basic level of skills to be able to identify what to do, which is probably why –as you identified from talking to employers– many graduates are not very useful'.</i></p> <p>A2(P)RI: <i>'We are not producing chief pharmacists, we're not producing people who can be on call in out-of-work hours, we're not producing people to be consulted about real patient problems. We're producing day-one graduates who are expected to have the skills you would expect from a day one graduate'.</i></p>

SUB-THEME 4.2:

The way pharmacists develop their skills and the way they demonstrate them varies in different contexts

Code	Data extract
Developing and demonstrating skills is context-specific	<p>A2(P): <i>'...obviously there is a transition period that you need to account for...'</i></p> <p>A13(P): <i>'I actually think it's kind of that hiatus where you actually have to transfer your skills into the new environment and context, and I think that whenever you transfer you are actually very vulnerable as a learner and quite needy'.</i></p> <p>A1(S)RI: <i>'we're basically dealing with 18 year olds with essentially little exposure'.</i></p>

	<p>A6(P)RI: <i>'I think the problem is that a lot of skills are not developed in context...'</i></p> <p>A6(P)RI: <i>'...so no matter how much skills we develop in an academic context they would still lack the exposure to service provision, the context would never be the same as when you're facing a patient'</i></p>
Some skills can be developed completely in an educational context	<p>A1(S): <i>'well for things like numeracy it's quite easy, and if they haven't got the right answer we'd look at the steps applied, and how they thought about it'</i></p> <p>A5(P): <i>'It depends on what skills, because for some of them we should really develop quite clearly. I think like numeracy there is no reason why we can't do that. I think that's kind of basic level stuff that the university should deal with, so that when graduates leave the university it is not a problem. But we see post graduates coming in from lots of schools and numeracy is a problem, so I guess the problem's not completely solved, but I think it should be, I think that's a certain something'</i></p>

SUB-THEME 4.3:

Lack of sufficient joint efforts between pharmacy schools and real-world organisations from all sectors in order to increase students' exposure to the real-world workplace during their studies in an integrated manner

Code	Data extract
Academics see that pharmacy curricula need to be improved to include more student exposure to real-life situations	<p>A5(P): <i>'I think we've still got a long way to go to develop pharmacy education. I think we have focused too much on knowledge... it's a challenge for us to think about 'how we can change the way we teach and assess?' So that the knowledge is there... but actually the emphasis becomes much more on how that is applied. I see that is something which is a challenge'</i></p> <p>A14(P): <i>'one of the frustrations is that we are trying to develop medicines management from a patient's point of view, communicate with patients, introduce new services, liaise with doctors, and give them all those skills. We've got to have a consultation module which is all about doing proper consultation with the patients and asking them the right questions from a GP type of consultation rather than a traditional one'</i></p> <p>A14(P): <i>'I would say in an ideal world the degree would be integrated; we would give them the module and then they can go out and apply what they learned in practice and then come back again to be assessed on that at the end of that module. So I think it should be a joint partnership'</i></p> <p>A20(S): <i>'Toward this our philosophy is going to be that students should be spending more time in the workplace during doing their degree programme, we're looking at the prospect of integrated pre-reg...'</i></p>

	<p>A1(S)RI: <i>'I do agree that students are not exposed enough to real-life situations... the proposed modernising pharmacy career basically says do more of an integrated approach... where the university kind of has to have its standards for pre-registration, not the employer's standards'.</i></p> <p>A2(P)RI: <i>'I don't think anyone disagrees with integrating the pre-reg into a 5-year degree...'</i></p>
<p>Academics are frustrated that real-world organisations are increasingly demanding more financial compensations in return of training pre-reg. Students</p>	<p>A6(P): <i>'Students need to go into the workplace to develop their skills, but a lot of employers want to get paid to have our students, and yet they want the students to have these skills... achieving these expectations is not that easy when the employers want money'.</i></p> <p>A6(P): <i>'...in community it is much harder, other than seeing it as a business opportunity in trying to recruit the best students who will eventually bring their companies money for the services they provide, it's very hard, and we don't have that kind of money to pay employers to take our students who are going to do work for them'.</i></p> <p>A2(P)RI: <i>'I don't think anyone disagrees with integrating the pre-reg into a 5-year degree, but we do have a problem with funding...'</i></p> <p>A5(P)RI: <i>'...we're not funded for clinical placements... funding is a great barrier and pharmacy schools are under a lot of pressure to deliver too much in the programme'.</i></p> <p>A6(P)RI: <i>'...In this school we have struggled with community pharmacy because they want to get paid and they don't see much benefit in training students that they might employ in the future...'</i></p>
<p>The educational process does not expose students enough to communication with doctors from real-life environments</p>	<p>A1(S): <i>'I think where we struggle when we teach pharmacists is the fact that we don't actually talk to people like medics, we don't get that much patient exposure when they go out on placements, and until they start their pre-registration they won't be talking to any medics and that can be quite intimidating'.</i></p> <p>A1(S): <i>'We really need to be talking to doctors more, and we need to be talking to patients more actually'.</i></p> <p>A13(P): <i>'...I think some of them will have an issue in dealing with senior medics... has to do with them thinking that they don't know enough as the medics... we have a session and bring medics... where students deal with medical staff...'</i></p> <p>A1(S)RI: <i>'...we do get our students to talk to nurses, physiotherapists but perhaps we don't get them to talk enough to medics, something we should probably work on more, and we have to teach them how to approach medics in a professional and right way...'</i></p> <p>A2(P)RI: <i>'It would be nice to have more communication with medics during studies but I'm not sure how we'll do it, we don't have a medicine school here... it would also be nice to put pharmacy and medicine students together and allow them to interact'.</i></p>

	A5(P)RI: <i>'I would like to see more communication between pharmacy and medicine students and we have tried to work on it; I think it's very important... it's not easy to bring them together in several ways, but we're certainly trying to do that...'</i>
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SUB-THEME 4.4:

The pre-registration year and the four-year educational process at HEIs do not link together and both have different objectives

Code	Data extract
Academics see that the pre-registration year and the pharmacy education at HE do not link together and both have different objectives	<p>A6(P): <i>'Students need to go into the workplace to develop their skills, but a lot of employers want to get paid to have our students, and yet they want the students to have these skills. So we're not really in a great situation because we have these expectations as educators but achieving these expectations is not that easy when the employers want money'</i>.</p> <p>A1(S)RI: <i>'...Big chains want to train future employees, not pre-reg. students, and want to put them into their own way of thinking. So no matter how much we do educationally at the end of the day they're gonna behave like a Boots pharmacist, or a Loyds pharmacist or a hospital pharmacist, and that is one of the biggest hurdles'</i>.</p> <p>A2(P)RI: <i>'I believe students lose a lot of the aspiration, enthusiasm and motivation they have during the pre-reg. year, no matter how much they're good or bad they become worried about the drug tariffs and all those issues and become kind of process orientated'</i>.</p> <p>A5(P)RI: <i>'Pre-registration is intended to help the educational process, but there is a difference in culture between an HEI and a working institution'</i>.</p> <p>A6(P)RI: <i>'...In this schools we have struggled with community pharmacy because they want to get paid and they don't see much benefit in training students that they might employ in the future...'</i></p>

SUB-THEME 4.5:

The pharmacists' role reflected by the retail sector is different from the professional image that the educational process teaches students

Code	Data extract
The image reflected by retail pharmacists is not a professional one	<p>A1(S): <i>'... certainly the community sector needs re-engineering... I don't think we do our selves a good PR image. We need more people who care'</i>.</p> <p>A1(S): <i>'I've kind of got a clear vision of what we are trying to produce, but in the real-world I don't think the role is sufficiently exciting enough for people... I don't think that pharmacists know what is expected from them'</i>.</p>

	<p>A6(P): <i>'Our students don't really have role models... I think it would be really helpful for pharmacy students to see 4 or 5 role models who are really confident and assertive, but we don't have that and so you get that lack of confidence that moves from generation to generation'.</i></p> <p>A17(S): <i>'...I have friends who are pharmacists who get paid £40 an hour for doing nothing...'</i></p> <p>A17(S): <i>'I think that a very large majority of our students have come into pharmacy cos a family member or someone they know is a pharmacist and has said to them 'Oh, you know it's an easy job, you turn up, get paid £30 an hour to sit there and read a paper!''.</i></p> <p>A5(P)RI: <i>'...I believe community pharmacy needs to develop; it has developed a bit but probably not as much as we want to'.</i></p>
<p>The importance of talking to patients. They want pharmacists who care</p>	<p>A1(S): <i>'...they have to know that they have to think about the patient and I don't think pharmacists do that. A pharmacist can make a patient feel better you know'.</i></p> <p>A14(P): <i>'...one of the frustrations is that we are trying to develop medicines management from a patient's point of view, communicate with patients, introduce new services, liaise with doctors, and give them all those skills. We've got to have a consultation module which is all about doing proper consultation with the patients and asking them the right questions from a GP type of consultation rather than a traditional one, but the problem is that in reality 95% of a pharmacist's job is about dispensing and pharmacists should get out of that and start talking to patients, it's happening but still'.</i></p> <p>A17(S): <i>'the majority of pharmacists who are in the community makes up what 70% of the pharmacy population go through day after day without making any sort of clinical decision or, having any clinical input, and so perhaps we're being dishonest as academics and teachers, by preparing them for a job which in all honesty doesn't exist at the moment'.</i></p> <p>A1(S)RI: <i>'...I guess pharmacists are equally to blame with the number of locums, they get paid very well just to check prescriptions and they don't build customers or patient relationships'.</i></p> <p>A2(P)RI: <i>'...I think pharmacists have kind of broken that relationship between the pharmacist and patients because community pharmacy used to be community pharmacy, it was THE pharmacist in the community...'</i></p>
<p>Retail pharmacists do not establish sufficient communication with doctors</p>	<p>A1(S)RI: <i>'...there's always the stereotype 'the doctors know best and why would we go out and challenge them', but I can see that when we talk to doctors they are quite happy to see things from our angle'.</i></p> <p>A1(S)RI: <i>'I think they're rather scared to talk to medics. I mean if it's a clear over dose they will say something, but if they don't know they will ignore'.</i></p>

	<p>A10(P): <i>'...they find it difficult to interact with other health team members... they are encouraged to go and interact with doctors about it but they find that really really difficult, and we find that really really difficult to teach'.</i></p> <p>A13(P): <i>'...I see the newly qualified pharmacists coming and there is a whole team of doctors and a whole team of nurses and there's only one of them (pharmacists) there and they have to be useful within the team to achieve what is required for the patient and they struggle with that..'</i></p> <p>A1(S)RI: <i>'Lack of confidence comes from the traditional thinking that we are subservient to the medics. It's like a theory that we don't know as much as doctors and the doctor is always the king... Communication maybe has to do with a combination of factors of how much a pharmacist is taught and how much he practices'.</i></p>
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SUB-THEME 4.6:

The uncontrolled growing influence of multiples (chain pharmacies) that is turning the profession to become primarily business-oriented

Code	Data extract
Multiples (chain pharmacies) are turning the profession to become primarily business-oriented	<p>A1(S)RI: <i>'...multiples are the ones who destroyed community pharmacy, so pharmacists are no longer doing what they're supposed to... the worry is that our students will go out to practice and get constrained by essentially the sector they work in, and I guess pharmacists are equally to blame with the number of locums, they get paid very well just to check prescriptions and they don't build customers or patient relationships and that's the multiple's fault. Now if you have your own business in a small chain they generally have better staff retention with permanent pharmacists, and build that kind of relationship with patients and customers which will allow pharmacists to do more because patients trust them more, and that's what community pharmacy should be about'.</i></p> <p>A2(P)RI: <i>'...I think pharmacists have kind of broken that relationship between the pharmacist and patients because community pharmacy used to be community pharmacy, it was THE pharmacist in the community when it was all independent businesses before we had the multiples who now took over and they run it as a business and not as a practice, it's not a profession to them...'</i></p> <p>A5(P)RI: <i>'...But now with the large business in multiple pharmacies pharmacists will have to finish a lot of prescriptions and work on the MURs, profits... and different aspects of the business, so the roles might not be clinically oriented and focusing on patient care and advice about medications as we hope to be'.</i></p>

SUB-THEME 4.7:**Lack of sufficient government support to control the job description of pharmacists**

Code	Data extract
The government does not support the professional role of pharmacists	<p>A1(S): <i>'The NHS kind of killed us because we went from makers to suppliers against the doctor's prescriptions'.</i></p> <p>A17(S): <i>'...I think the NHS could save an amount of money if pharmacists were encouraged to go back to some of their small scale formulation'.</i></p> <p>A1(S)RI: <i>'Fundamentally the pharmacy contract negotiated with the department of health is wrong they get paid for dispensing even though there are more services to be provided...'</i></p> <p>A1(S)RI: <i>'...they are getting paid quite nicely for not doing much. The market won't change until the government intervenes and says you can't continue to be paid for dispensing...'</i></p> <p>A6(P)RI: <i>'I guess the department of health should start looking at community pharmacists... offering contracts to pharmacists in community pharmacy similar to those offered to GPs, and as part of that they're required to train pharmacy students and get paid for that...'</i></p>